

**MULTI-PIECE FLOOR CLEANING IMPLEMENT AND CONTAINER**  
**FOR USE IN HOLDING THE SAME IN UNASSEMBLED FORM**  
**BACKGROUND OF THE INVENTION**

The present invention relates generally to cleaning implements and more particularly to floor cleaning implements.

Floor cleaning implements are well-known and widely used in commerce to clean hard flooring surfaces, such as ceramic tile, hardwood, vinyl, laminate, linoleum and marble floors.

One type of floor cleaning implement that is well-known and widely used in the art is a dry duster, also commonly referred to in the art as a sweeper. A dry duster is designed to capture onto a disposable, electrostatically-charged cloth light household debris, such as dust, dirt and hair, from a hard flooring surface. Typically, a dry duster comprises an elongated cylindrical handle, which is pivotally coupled to a flat sweeper head through a universal joint. The flat sweeper head is adapted to releasably retain the electrostatically-charged cloth around its bottom surface. In use, an operator lightly glides the duster over a floor surface in need of cleaning so that the disposable cloth is in direct contact with the floor surface. As the disposable cloth comes into contact with dry household debris present on the floor, such debris is electrostatically retained on the disposable cloth. As can be appreciated, debris collected onto the disposable cloth can simply be disposed of by removing the used disposable cloth from the sweeper head and then discarding the used cloth as waste. In order to perform further cleaning, a new disposable cloth is mounted onto the sweeper head.

It should be noted that dry dusters of the type described above are commonly manufactured as a plurality of individual pieces. In particular, dry dusters of the type described above typically comprise a handle (17 mm in cross-sectional diameter) which is manufactured as four individual pieces which are subsequently coupled together (e.g., through a conventional screw-type threading relationship between successive pieces) after purchase. Due to its multiple piece construction, this type of dry duster is typically packaged for sale in a box of limited size (e.g., in a box smaller in size than a conventional shoe box). As a result, a dry duster of this type, while in its packaged form, requires very limited storage space prior to purchase and

requires very limited floor space at the place of display for sale, which is highly desirable.

Another type of cleaning implement exists which type is known as a wet duster.

Wet dusters are similar in construction to dry dusters in that wet dusters  
5 comprise an elongated cylindrical handle which is pivotally coupled to a flat sweeper  
head through a universal joint. The flat sweeper head of a wet duster is adapted to  
releasably retain a disposable, absorbent cloth around its bottom surface.  
Furthermore, it should be noted that a wet duster handle is commonly manufactured  
out of two or three pieces that are adapted to be joined together by the consumer,  
10 thereby enabling the wet duster to be packaged for sale in an unassembled state in  
a box of limited size, which is highly desirable for reasons noted above.

Wet dusters differ in construction from dry dusters in that wet dusters include  
a floor cleaner dispensing system which is typically actuated through a trigger  
mounted on the free end of the handle. As such, an operator can first dispense a  
15 supply of floor cleaner from the wet duster onto a desired area of a floor and then rub  
the absorbent cloth over the dispensed floor cleaner to wash the desired area.

Examples of wet dusters are disclosed in U.S. Patent No. 6,101,661, U.S.  
Patent No. 6,048,123, U.S. Patent No. 6,003,191, U.S. Patent No. 5,960,508, U.S.  
Patent No. 5,988,920, and U.S. Patent No. 5,888,006.

20 As far as is known, dry dusters and wet dusters are the only floor cleaning  
implements in which the handle is made up of multiple pieces. However, because of  
the construction of their handles, both dry dusters and wet dusters are best-suited for  
spot cleaning or light-duty cleaning, as opposed to heavy-duty cleaning or other  
applications in which considerable force is applied to the duster handle.

25 As used herein, the term "traditional floor cleaning implement" refers to a floor  
cleaning implement, such as a mop or a broom, but not to a floor cleaning implement  
that is either a dry duster or a wet duster.

## **SUMMARY OF THE INVENTION**

It is an object of the present invention to provide a new and improved floor cleaning implement.

5 It is another object of the present invention to provide a new and improved traditional floor cleaning implement.

It is yet another object of the present invention to provide a kit comprising a traditional floor cleaning implement in unassembled form and a container for holding the parts of the traditional floor cleaning implement in unassembled form.

10 It is yet still another object of the present invention to provide a floor cleaning implement as described above which includes a handle which is strong and rigid and which can be used in heavy-duty cleaning applications.

It is another object of the present invention to provide a new and improved container for holding a multi-piece traditional floor cleaning implement in unassembled form.

15 It is yet another object of the present invention to provide a multi-piece traditional floor cleaning implement which is inexpensive to manufacture and is easy to assemble.

20 Various other features and advantages will appear from the description to follow. In the description, reference is made to the accompanying drawings which form a part thereof, and in which is shown by way of illustration, various embodiments for practicing the invention. The embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. The following detailed description is  
25 therefore, not to be taken in a limiting sense, and the scope of the present invention is best defined by the appended claims.

According to one aspect of this invention there is provided a traditional floor cleaning implement comprising a head and a multi-piece handle. In one embodiment of the invention, the head is a conventional sponge mop head. In another  
30 embodiment of the invention, the head is a roller mop head. In another embodiment of the invention, the head is a butterfly mop head. In another embodiment of the invention, the head is a squeeze mop head. In another embodiment of the invention,

the head is a mop head. In another embodiment of the invention, the head is a strip mop head. In another embodiment of the invention, the head is a broom mop head.

According to another aspect of this invention, there is provided a container for holding a multi-piece traditional floor cleaning component in unassembled form and  
5 for displaying selected parts therein such that they can be seen and touched.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings wherein like reference numerals represent like parts:

Fig. 1 is a front plan view of a kit constructed according to this invention, the kit including a plurality of pieces which, when assembled, form a sponge mop and also including a container for holding the plurality of pieces in unassembled form;

Fig. 2 is an enlarged, fragmentary, front plan view, broken away in part, of the first section of the handle of the cleaning implement of Fig. 1;

Fig. 3 is an enlarged, fragmentary, longitudinal section view of the second section of the handle of the cleaning implement of Fig. 1;

Fig. 4 is a front plan view of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being designed to replace the mop head shown in Fig. 1;

Fig. 5 is a front plan view of the mop head shown in Fig. 4, the mop head being shown with the tubing disposed in a different position relative to the base;

Figs. 6 and 7 are side views of the mop head shown in Fig. 4 at different stages during the wringing process;

Fig. 8 is a rear plan view of the mop head shown in Fig. 4;

Fig. 9 is a front plan view of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being designed to replace the mop head shown in Fig. 1;

Fig. 10 is a back plan view of the mop head shown in Fig. 9;

Fig. 11 is a front plan view of the mop head shown in Fig. 9, the mop head being shown with the sponge pivoted sideways;

Fig. 12 is a front plan view of the mop head shown in Fig. 9 during the wringing process;

Figs. 13 and 14 are side views of the mop head shown in Fig. 9, the mop head being shown pivoted front-to-back in two different positions;

Fig. 15 is a front plan view of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being designed to replace the mop head shown in Fig. 1;

Fig. 16 is a right side view of the mop head shown in Fig. 15;

Fig. 17 is a top view of the mop head shown in Fig. 15;

Fig. 18 is front, fragmentary, plan view of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being designed to replace the mop head shown in Fig. 1;

5 Figs. 19 and 20 are front, fragmentary plan views of the mop head shown in Fig. 15 at different stages during the wringing process;

Fig. 21 is a front plan view of an angle broom head constructed according to the teachings of the present invention, the angle broom head being designed to replace the mop head shown in Fig. 1, the angle broom head also being shown with a complementary dustpan mounted thereon;

10 Fig. 22 is a left side view of the dustpan shown in Fig. 21;

Fig. 23 is an enlarged, front plan view of the dustpan shown in Fig. 21.

Fig. 24(A) is an exploded, front plan view of another embodiment of a roller mop constructed according to the teachings of the present invention;

15 Fig. 24(B) is a front view of a container for holding the roller mop pieces shown in Fig. 24(A), the roller mop pieces of Fig. 24(A) and the container of Fig. 24(B) together forming a kit;

Fig. 25 is a pictorial view showing the roller mop in Fig. 24(A) assembled and in use;

Fig. 26 is an enlarged view of the bottom of the roller mop shown in Fig. 25;

20 Figs. 27, 28 and 29 are top, left side, and perspective views, respectively, of the container shown in Fig. 24(B);

Fig. 30 is a view of the blank from which the container shown in Fig. 24(B) is constructed;

25 Fig. 31 is a front view of the hang cap in the handle shown in Fig. 24(A) with the component parts of the roller mop disposed therein;

Fig. 32 is a pictorial view of an assembled multi-piece butterfly mop of this invention as it is being used;

Fig. 33 is an enlarged fragmentary view of the bottom of the butterfly mop shown in Fig. 32;

30 Fig. 34 is a pictorial view showing the butterfly mop in Fig. 32 disposed in unassembled form in the container of Fig. 24(B);

Fig. 35 is a pictorial view of an assembled multi-piece squeeze mop of this invention as it is being used;

Fig. 36 is an enlarged view of the bottom of the squeeze mop shown in Fig. 35;

Fig. 37 is a pictorial view of an assembled multi-piece angle broom and  
5 dustpan of this invention as it is being used; and

Fig. 38 is an enlarged view of the bottom of the broom and dustpan shown in Fig. 37.



## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring now to Fig. 1, there is shown a kit constructed according to the teachings of the present invention, the kit being identified generally by reference numeral 11. As will be described further in detail below, kit 11 includes a plurality of individual pieces which, when assembled together, form a traditional cleaning implement 13. Kit 11 also includes a container 15 formed from a single-piece corrugated paperboard blank.

It should be noted that cleaning implement 13, when in its disassembled state, is sized and shaped to be disposed entirely within enclosed container 15 to form kit 11. As can be appreciated, such a kit is a highly compact and durable unit, thereby facilitating the transportation, storage and display for sale of cleaning implement 13, which is highly desirable.

Cleaning implement 13 is designed for the heavy-duty cleaning of a hard flooring surface. Cleaning implement 13 comprises a mop head 17 and a multi-section handle 19 releasably coupled to mop head 17.

Mop head 17 comprises a rigid plastic base 21 which is shaped to define a threaded bore 23. Mop head 17 additionally comprises a rectangular, heavy-duty sponge 25 which is affixed to the underside of base 21.

Multi-section handle 19 includes a plurality of separate pieces which can be joined together to form a substantially pole-shaped member having a length of approximately 129.7 cm. Specifically, multi-section handle 19 comprises a first section 27 which is releasably joined to base 21 of mop head 17, a second section 29 which is removably joined to first section 27, and a third section 31 which is removably joined to second section 29. (Although one may disassemble the various sections of handle 19 once they have been joined to one another, handle 19 is intended to remain in its assembled state after assembly.)

First section 27 is in the form of an elongated, hollow, cylindrical tube which is constructed of a strong, rigid and durable material, such as a piece of steel tubing which is approximately 2.2 cm in diameter and approximately 41.0 cm in length. First section 27 includes a first end 33 and a second end 35.

A male connector 37 which is threaded along its length is formed onto and extends orthogonally out from first end 33 of first section 27. Male connector 37 is



sized and shaped to be fittingly inserted into and threadingly engage threaded bore 23 of mop head 17. In this manner, first section 27 of handle 19 can be coupled to mop head 17 through the clockwise rotation of first section 27 about its longitudinal axis.

5           As seen most clearly in Fig. 2, second end 35 of first section 27 is inwardly crimped so as to form a portion 39 of reduced diameter, portion 39 having a length of approximately 3.1 cm. Further, a male connector 41 is formed onto and extends orthogonally out from second end 35 of first section 27.

10           Male connector 41 comprises an elongated shaft 43 which extends co-axially out from second end 35 of first section 27. Shaft 43 tapers gradually inward away from second end 35 and terminates into an enlarged head 44 at its free end. It should be noted that the outer surface of shaft 43 includes a spiraled threading 45 along a portion of its length.

15           Male connector 41 also includes a plastic cap 47 which is axially disposed over shaft 43, cap 47 being generally circular in lateral cross-section. The outer surface of cap 47 is shaped to include a plurality of outwardly protruding ribs 49. The inner surface of cap 47 is shaped to include a spiraled threading 51 which is sized and shaped to engage threading 45 on shaft 43. Further, a longitudinal slot 53 is formed along the length of cap 47, slot 53 enabling cap 47 to be inwardly compressed upon  
20           the application of a significant force.

          As seen most clearly in Fig. 3, second section 29 is in the form of an elongated, hollow, cylindrical tube which is constructed of a strong, rigid and durable material, such as a piece of steel tubing which is approximately 2.2 cm in diameter and approximately 48.2 cm in length. Second section 29 includes a first end 55 and  
25           a second end 57.

          It should be noted that first end 55 of second section 29 is sized and shaped to fittingly receive and frictionally engage with male connector 41 on first section 27. Specifically, male connector 41 and crimped portion 39 of first section 27 are both inserted entirely into first end 55 of second section 29. As male connector 41 is  
30           inserted into second section 29, ribs 49 on cap 47 frictionally engage the inner surface of second section 29. With ribs 49 frictionally engaging the inner surface of second section 29 so as to retain cap 47 in a fix position within second section 29,

first section 27 is rotated in the clockwise direction about its longitudinal axis. The clockwise rotation of first section 27 causes shaft 43 to travel axially through cap 47 in the direction represented by arrow A in Fig. 2 (with threading 51 on cap 47 engaging threading 45 on shaft 43). As shaft 43 travels axially through cap 47 in the direction represented by arrow A, the tapered outer surface of shaft 43 outwardly urges cap 47, thereby increasing the lateral cross-sectional diameter of cap 47 which, in turn, increases the frictional engagement between cap 47 and second section 29. As such, a strong, secure connection can be created between first section 27 and second section 29, which is highly desirable.

Third section 31 is in the form of an elongated, hollow, cylindrical tube which is constructed of a strong, rigid and durable material, such as a piece of steel tubing which is approximately 2.2 cm in diameter. Third section 27 includes a first end 59 and a second end 61.

First end 59 of third section 31 is inwardly crimped so as to form a portion 63 of reduced diameter, portion 63 having a length of approximately 3.1 cm. Further, a male connector 41 is formed onto and extends orthogonally out from first end 59 of third section 31. As can be appreciated, third section 31 can be coupled to second section 29 in the same manner in which second section 29 can be coupled to first section 27, as was described in detail above.

A rotatable end cap 65 is slidably disposed over second end 61 of third section 31. Affixed together, third section 31 and end cap 65 have an overall length of approximately 44.0 cm.

It should be noted that handle 19 is strong and well-suited for heavy-duty cleaning applications. The strength of handle 19 is due, in part, to the fact that handle 19 is preferably made of a durable material, such as steel, in part, to the fact that handle 19 has a diameter of 22 mm and, in part, to the fact that handle 19 comprises a plurality of sections of handle 19 that are connected together by strong connectors. Consequently, handle 19 is able to more evenly distribute stress along its length and is more effectively able to tolerate the stress experienced at the juncture between coupled sections.

Container 15 is designed primarily for the packaging of cleaning implement 13 into a compact and durable unit. In fact, container 15 is designed ship, store and/or

display cleaning implement 13 as a condensed package, which is a principal object of the present invention.

It should be noted that cleaning implement 13 is not limited to mop head 17. Rather, it is to be understood that mop head 17 could be replaced with alternative types of cleaning implement heads without departing from the spirit of the present invention.

Specifically, referring now to Figs. 4-8, there are shown various views of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being identified generally by reference numeral 67. As can be appreciated, mop head 67 could be used in place of mop head 17 in kit 11 without departing from the spirit of the present invention.

Mop head 67 is a pivoting roller mop with a scrub brush attached thereto. Specifically, mop head 67 comprises a base 69 and a threaded tubing 71 pivotally coupled to base 69, threaded tubing 71 being sized and shaped to receive and threadingly engage male connector 37 of handle 19. Preferably, mop head 67 is designed so that tubing 71 can pivot approximately 90 degrees relative to base 69, as represented by arrow B in Fig. 4.

As seen most clearly in Figs. 6 and 7, a rectangular, heavy-duty sponge 73 is disposed between a pair of spaced apart rollers 74 which are fixedly mounted onto the bottom of base 69. A wringing mechanism 75 is slidably mounted onto tubing 71 and is coupled, at one end, to sponge 73 through a metal rod 76. As can be appreciated, the displacement of mechanism 75 along tubing 71 serves to displace sponge 73 between rollers 74. As a result, the length of sponge 73 can be tightly squeezed between rollers 74 so as to wring any excess moisture collected in sponge 73, which is highly desirable.

A scrub brush 77 is affixed to one roller 74. Brush 77 is designed to provide mop head 67 with heavy-duty scrubbing capabilities, which is highly desirable.

Referring now to Figs. 9-14, there are shown various views of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being identified generally by reference numeral 79. As can be appreciated, mop head 79 could be used in place of mop head 17 in kit 11 without departing from the spirit of the present invention.

Mop head 79 is a pivoting butterfly mop with a scrub brush attached thereto. Specifically, mop head 79 comprises a base 81 and a threaded tubing 83 fixedly coupled to base 81, threaded tubing 83 being sized and shaped to receive and threadingly engage male connector 37 of handle 19.

5 A pair of plates 85 are pivotally coupled to base 81 about a hinge 87. A heavy-duty sponge 89 is fixedly mounted onto the underside of plates 85. It should be noted that mop head 79 is designed such that plates 85 (and, in turn, sponge 89) can pivot in the side-to-side direction approximately 30 degrees, as can be seen most clearly in Fig. 11. Additionally, mop head 79 is designed such that plates 85 (and, in turn,  
10 sponge 89) can pivot in the front-to-back direction approximately 45 degrees, as can be seen most clearly in Fig. 14.

A wringing mechanism 91 is slidably mounted onto tubing 83 and includes, at one end, a knob 93 and, at the other end, a U-shaped member 95. As can be appreciated, the downward displacement of mechanism 91 along tubing 83 serves  
15 to urge the bifurcated end of member 95 against each plate 85. As mechanism 91 is further displaced downward, member 95 causes plate 85 to pivot inward about hinge 87. As seen most clearly in Fig. 12, the inward pivoting of plate 85 about hinge 87 causes sponge 73 to bend in such a manner so as to wring any excess moisture collected in sponge 73, which is highly desirable.

20 A pair of scrub brushes 97 are affixed to plates 85. Brushes 97 are designed to provide mop head 79 with heavy-duty scrubbing capabilities, which is highly desirable.

Referring now to Figs. 15-17, there are shown various views of another embodiment of a mop head constructed according to the teachings of the present  
25 invention, said mop head being identified generally by reference numeral 99. As can be appreciated, mop head 99 could be used in place of mop head 17 in kit 11 without departing from the spirit of the present invention.

Mop head 99 is a conventional, or hinge, mop head. Specifically, mop head 99 comprises a base 101 and a threaded tubing 103 fixedly coupled to base 101,  
30 threaded tubing 103 being sized and shaped to receive and threadingly engage male connector 37 of handle 19.

A heavy-duty sponge 105 is fixedly mounted on the underside of base 101. Specifically, sponge 105 includes a plurality of snap-ins 107, which are sized and shaped to be snapped into keyholes 109 formed in base 101.

5 An arm 111 is pivotally coupled to base 101 about a film hinge 113. In this manner, arm 111 can be pivoted into selective abutment against the underside of sponge 105 to wring any excess moisture collected in sponge 105, which is highly desirable.

10 Referring now to Figs. 18-20, there are shown various views of another embodiment of a mop head constructed according to the teachings of the present invention, said mop head being identified generally by reference numeral 115. As can be appreciated, mop head 115 could be used in place of mop head 17 in kit 11 without departing from the spirit of the present invention.

15 Mop head 115 is a double-cone, strip mop head. Specifically, mop head 115 comprises a base 117 and a threaded tubing 119 fixedly coupled to base 117, threaded tubing 119 being sized and shaped to receive and threadingly engage male connector 37 of handle 19.

A plurality of strips 121 are fixedly mounted on the free end of base 117.

20 A wringing device 123 is slidably mounted along the longitudinal axis of tubing 119, device 123 having a double-cone configuration. Device 123 is constructed to snap-in, or click, into its most upward position (or at rest position), as seen most clearly in Fig. 18. As seen most clearly in Figs. 19 and 20, sliding device 123 downwardly serves to inwardly compress strips 121, thereby wringing any excess moisture collected in strips 121, which is highly desirable (Fig. 19 representing a pre-squeeze wringing condition and Fig. 20 representing a hard-squeeze wringing condition).

25 Referring now to Figs. 21-23, there are shown various views of another embodiment of a head constructed according to the teachings of the present invention, said head being identified generally by reference numeral 125. As can be appreciated, head 125 could be used in place of mop head 17 in kit 11 without departing from the spirit of the present invention.

30 Head 125 is an angle broom head which includes a threaded tubing 127 sized and shaped to receive and threadingly engage male connector 37 of handle 19.



A dustpan 129 is also shown which functions in cooperation with head 125, dustpan 129, head 125 and handle 19 all being sized and shaped to fit within a container. As can be appreciated, dustpan 129 can be stacked together with broom head 125 for storage purposes and to protect the bristles of broom head 125.

5 Dustpan 129 includes rubber feet 131 on its bottom surface to prevent movement of dustpan 129 during use. Dustpan 129 also includes a rubber ball 133 disposed just above its center of gravity. Rubber ball 133 is constructed out of a tactile material to facilitate handling in any direction.

10 Referring now to Fig. 24-31, there is shown another embodiment of a kit constructed according to this invention and identified by reference numeral 141.

Kit 141 includes a plurality of individual pieces which, when assembled together, form a full-featured roller mop 143.

15 As used herein, the term "full-featured roller mop" means a roller mop in which wringing is achieved by moving a piece attached to the mop i.e., without having to wring the mop by hand.

Roller mop 143 comprises a mop head 145, a five-piece handle 147 mounted on mop head 145 and a movable wringing sleeve 149 mounted on mop head 145.

20 Five-piece handle 147 comprises an outer piece 150 having a length of about 12 inches, three intermediate pieces 151, 152 and 153, respectively, each having a length of about 12 inches and a cross sectional outside diameter of about 7/8 of an inch, and an inner piece 157 also having a length of about 12 inches and an outside cross-sectional diameter of about 7/8 of an inch. Mop head 145 includes a bifurcated base 159 having an externally threaded tubing section 161 on the top, a sponge 163 disposed between a pair of rollers 165 and 167 fixedly mounted onto base 159 and a scrub brush 168 pivotally mounted on one of the rollers. Wringing sleeve 149 has a length of about 12 1/4 inches, is movably mounted over handle 147 and is screwed into tubing 161 at its lower end 166.

25 Outer piece 150 includes a gripping handle 169 at its upper end 171 having an end cap 173 similar to end cap 65 and a male connector 175 at its lower end 177 identical to male connector 41. Lower end 177 is detachably connected to upper end of first intermediate piece 151. First intermediate piece 151 includes at its lower end a male connector 179 identical to male connector 41, connector 179 being detachably



connected to upper end 181 of second intermediate piece 152. Second intermediate piece 152 includes at its lower end a male connector 182 identical to male connector 41, connector 182 being detachably connected to upper end 185 of third intermediate piece 153. Third intermediate piece 153 includes at its lower end a male connector 187 identical to male connector 41, connector 187 being detachably connected to upper end 191 of inner piece 157. Lower end 193 of inner piece 157 is screwed into an internally threaded bore 195 in section 161 of base 159.

Wringing of mop 143 is achieved by pushing sleeve 149 towards base 159 with one hand while holding handle 147 with the other hand.

Kit 141 further includes a container 197 for holding the component parts of roller mop 143 in an unassembled form and for displaying selected parts thereof. A blank 199 from which container 197 can be constructed is shown in Fig. 30. Container 197 has a top wall 198 which includes a pair of openings 198-1 and 198-2 into which may be inserted parts of mop 143. Container has a length L of about 13 inches, a width W of about 3 3/4 inches, a box height BH of about 3 1/2 inches and an overall height OH of about 12 1/4 inches.

Referring now to Figs. 32 through 34, there is shown in Fig. 32 a pictorial view of an assembled multi-piece full-featured, pivoting butterfly mop 201 constructed according to this invention; pivoting butterfly mop 201 being shown as it is being used. Mop 201 is full-featured in that wringing is achieved without having to wring the mop by hand.

Mop 201 includes a five-piece handle 203 identical to handle 147 in roller mop 143. Thus, handle 203 includes an outer piece 204 identical to outer piece 150. Mop 201 further includes a mop head 205 and a wringing sleeve 207 internally threaded at its lower end. Mop head 205 includes a base 209. A length of internally threaded tubing 211 is mounted on base 209. A bifurcated member 213 is mounted on base 209. The top 215 of bifurcated member 213 is internally threaded to threadingly engage the male connector at the bottom of handle 203. Head 205 further includes a pair of sponge mounting plates 213 and 215 mounted on base 209. A pair of rollers 216 and 217 are mounted on the bottom ends of bifurcated member 213. The top 215 of bifurcated member 213 is externally threaded and screwed into the bottom end

of wringing sleeve 207. Sponge 225 is removably mounted onto sponge mounting plates 213 and 215.

Butterfly mop 201 may be stored and displayed in a container 226 identical to container 197.

5 Referring now to Figs. 35-36, there are shown various views of another embodiment of a mop constructed according to the teachings of the present invention, said mop being identified generally by reference numeral 227.

Mop 227 is a conventional or squeeze mop. Specifically, mop 227 comprises a handle 229 and a head 231. Handle 229 is identical to handle 147.

10 Head 231 includes a base 233. A heavy-duty sponge 235 is fixedly mounted on the underside of base 233. Sponge 235 includes a plurality of snap-ins 237 which are sized and shaped to be snapped into keyholes 239 formed in base 233.

A plate 239 having a handle 241 is pivotally coupled to base 233 through a hinge 242. In this manner, plate 239 can be pivoted against the underside of sponge 235 to wring any excess moisture collected in sponge 235, which is highly desirable.

15 Mop 227 may be stored and displayed in a container identical to container 197.

Referring now to Figs. 37-38, there are shown various views of another embodiment of a cleaning implement constructed according to the teachings of the present invention, said cleaning implement being identified generally by reference numeral 243.

20 Cleaning implement 243 includes a handle 245 and a head 247. Handle 245 is identical to handle 147.

Head 247 is an angle broom head which includes a threaded tubing 249 sized and shaped to receive and threadingly engage the male connector at the bottom of handle 147.

25 A dustpan 251 is also shown which functions in cooperation with head 247, dustpan 251, head 247 and handle 245 all being sized and shaped to fit within a container which is identical to container 147. As can be appreciated, dustpan 251 can be stacked together with broom head 247 for storage purposes and to protect the bristles 255 of broom head 247.

30 Dustpan 251 includes rubber feet (not shown) on its bottom surface to prevent movement of dustpan 251 during use. Dustpan 251 also includes a bumper 259 on

the broom cap 261 to protect furniture and baseboards the broom may hit up against during use.

5       The embodiments shown of the present invention are intended to be merely exemplary and those skilled in the art shall be able to make numerous variations and modifications to them without departing from the spirit of the present invention. All such variations and modifications are intended to be within the scope of the present invention as defined in the appended claims.

**WHAT IS CLAIMED IS:**

1. A kit comprising:

(a) a mop head;

(b) a plurality of separate handle sections adapted to be joined together  
5 to form a mop handle, said mop handle being adapted to be joined to said mop head;  
and

(c) a container, said container being shaped to define an interior cavity,  
said interior cavity being dimensioned to contain at least a portion of said mop head  
and at least a portion of said separate handle sections.

10 2. The kit of claim 1 wherein said mop head is a sponge mop head.

3. The kit of claim 2 wherein said mop head is a butterfly mop head.

4. The kit of claim 2 wherein said mop head is a roller mop head.

5. The kit of claim 2 wherein said mop head is a strip mop head.

15 6. The kit of claim 1 wherein said mop handle comprises a first section having  
a first end and a second end, and a second section having a first end and a second  
end, the first end of the second section being coupled to the second end of the first  
section.

20 7. The kit of claim 6 wherein said mop handle further comprises a third  
section, said third section having a first end and a second end, the first end of the  
third section being coupled to the second end of the second section.

8. The kit of claim 7 wherein said mop handle further comprises a fourth  
section and a fifth section.

9. The kit of claim 6 wherein each of said first, second and third sections  
comprises steel tubing having a diameter of 2.2 cm.

25 10. The kit of claim 6 wherein a male connector is formed on and extends out  
from the second end of said first section and a female connector is formed on and  
extends out from the first end of said second section, said female connector being  
adapted to fittingly receive and frictionally engage said male connector.

30 11. The kit of claim 8 wherein said male connector comprises (a) an elongated  
shaft which is non-uniform in lateral cross-section along its length, the outer surface  
of said shaft being shaped to include a first spiraled threading and (b) a compressible  
cap axially disposed over said shaft, the inner surface of said cap being shaped to

include a second spiraled threading which is sized and shaped to engage the first spiraled threading on said shaft.

12. The kit of claim 1 wherein the container has a width of about thirteen inches.

5 13. A kit comprising (a) a broom head; (b) a plurality of separate handle sections adapted to be joined together to form a broom handle, said broom handle being adapted to be joined to said broom head; and (c) a container, said container being shaped to define an interior cavity, said interior cavity being dimensioned to contain at least a portion of said broom head and at least a portion of said separate  
10 handle sections.

14. The kit of claim 13 further comprising means for connecting said separate handle sections to form a broom handle wherein said connecting means comprises a male connector on one handle section and a female connector on another handle section, said female connector being adapted to fittingly receive and frictionally  
15 engage said male connector, said male connector comprising (a) an elongated shaft which is non-uniform in lateral cross-section along its length, the outer surface of said shaft being shaped to include a first spiraled threading and (b) a compressible cap axially disposed over said shaft, the inner surface of said cap being shaped to include a second spiraled threading which is sized and shaped to engage the first spiraled  
20 threading on said shaft.

15. A broom comprising a broom head, wherein said broom head is an angle broom head; and a plurality of separate handle sections joined together to form a broom handle, said broom handle being joined to said broom head.

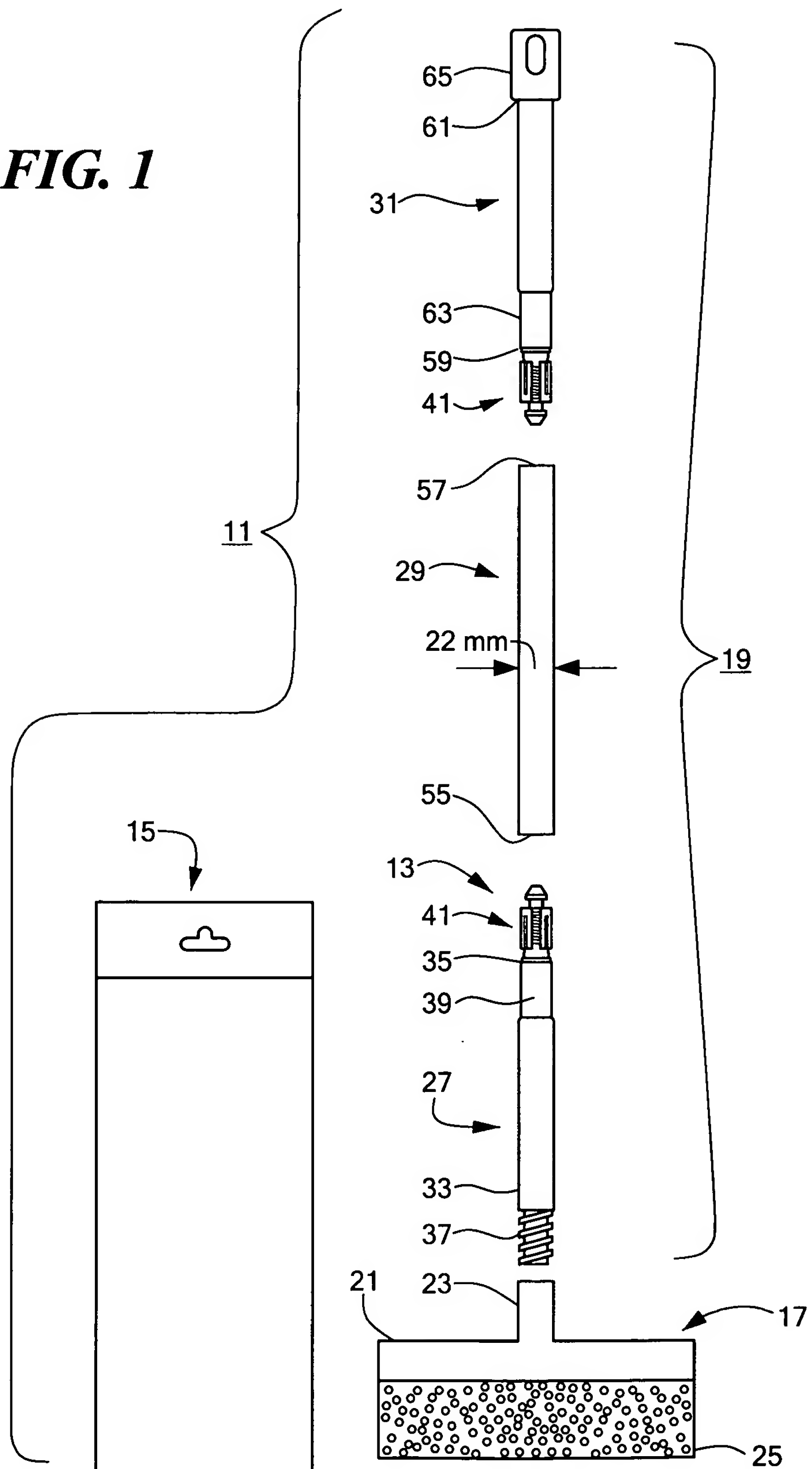
16. A mop comprising a mop head, wherein said mop head is selected from  
25 the group consisting of a sponge mop head and a strip mop head; and a plurality of separate handle sections joined together to form a mop handle, said mop handle being joined to said mop head.

### **ABSTRACT OF THE DISCLOSURE**

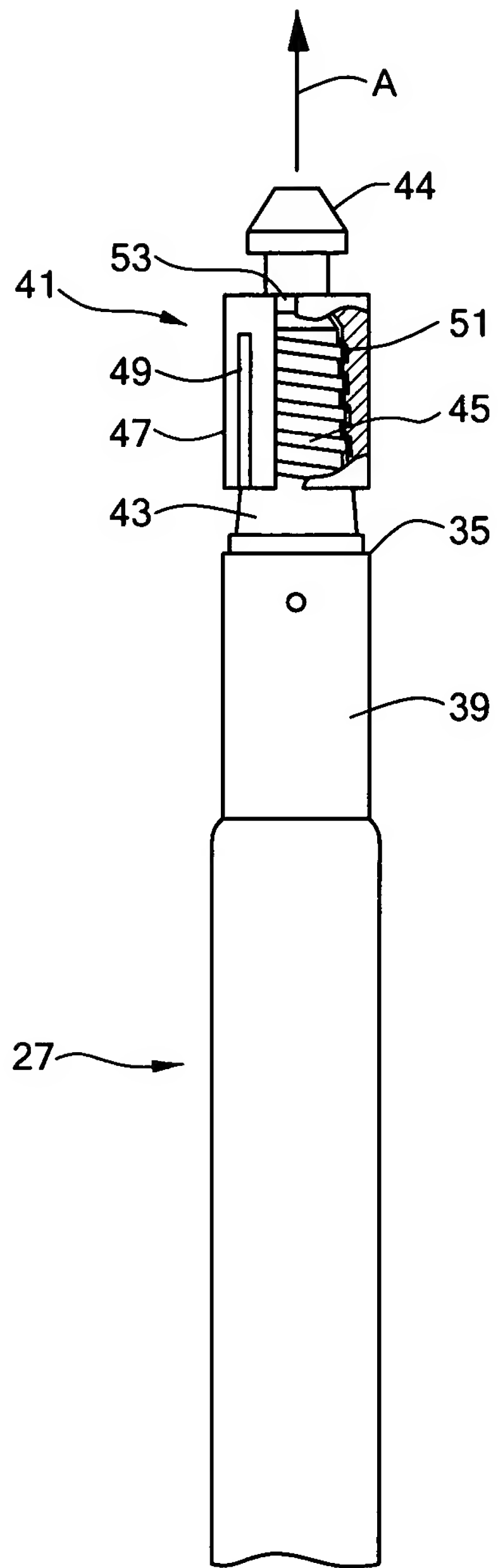
A traditional floor cleaning implement comprising a plurality of pieces which, when assembled, form the traditional floor cleaning implement and a container for holding the implement. In one embodiment, the kit includes a mop head, a plurality of separate handle sections adapted to be joined together to form a mop handle, the mop handle being adapted to be joined to the mop head, and a container for holding the mop head and the separate handle sections. In another embodiment, the kit includes a broom head, a plurality of separate handle sections adapted to be joined together to form a broom handle and a container for holding the broom head and the separate broom handle sections.



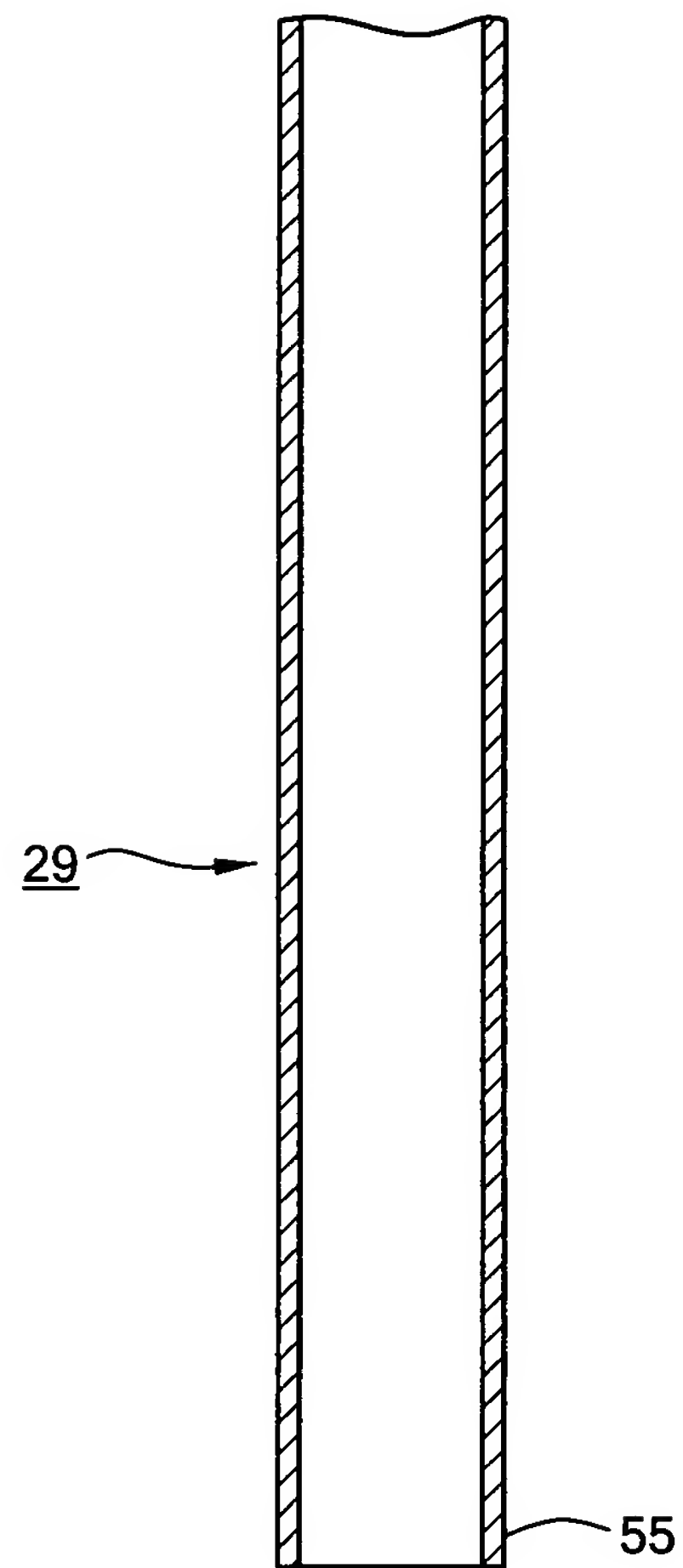
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**FIG. 1**

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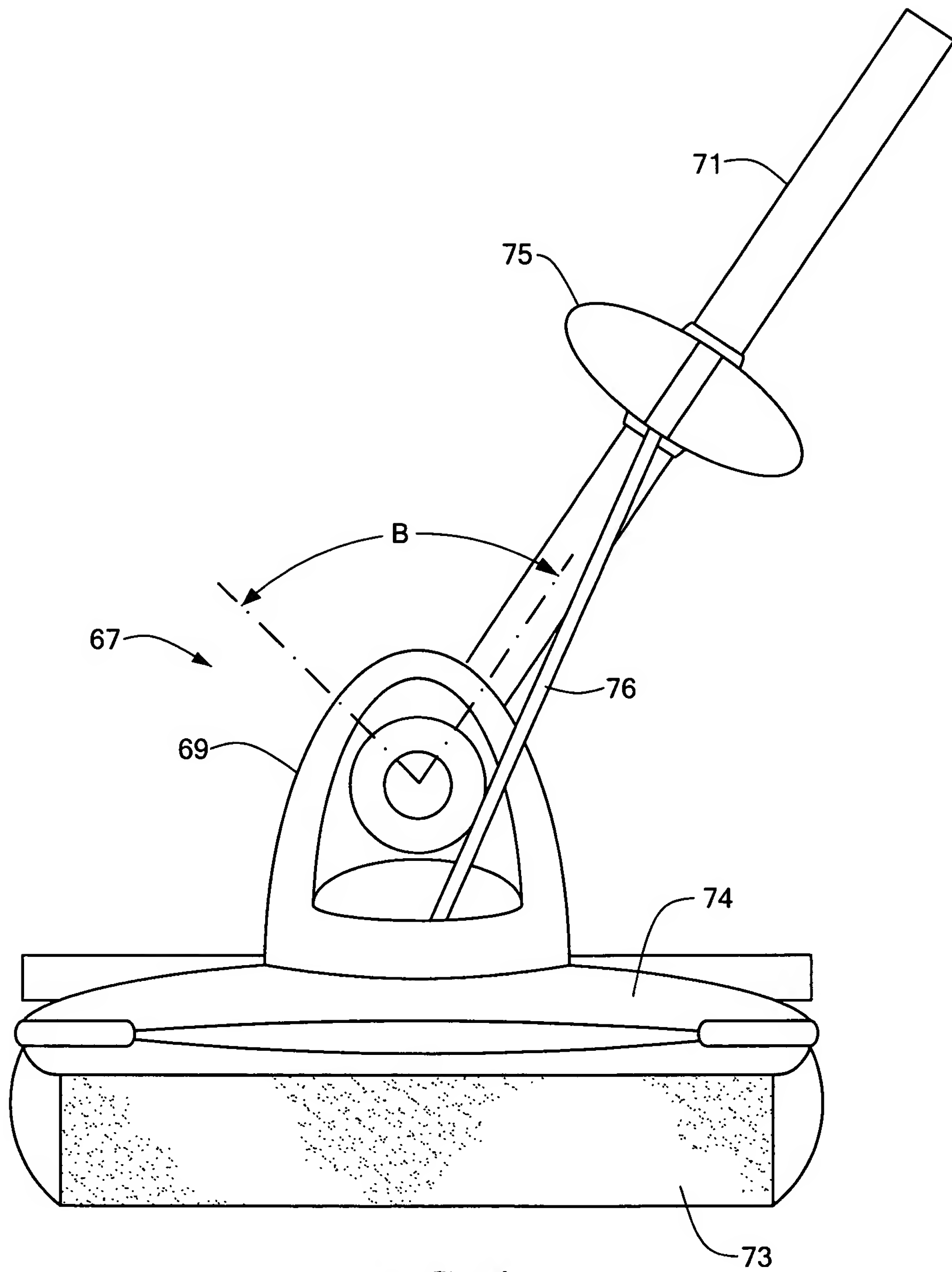


**FIG. 2**

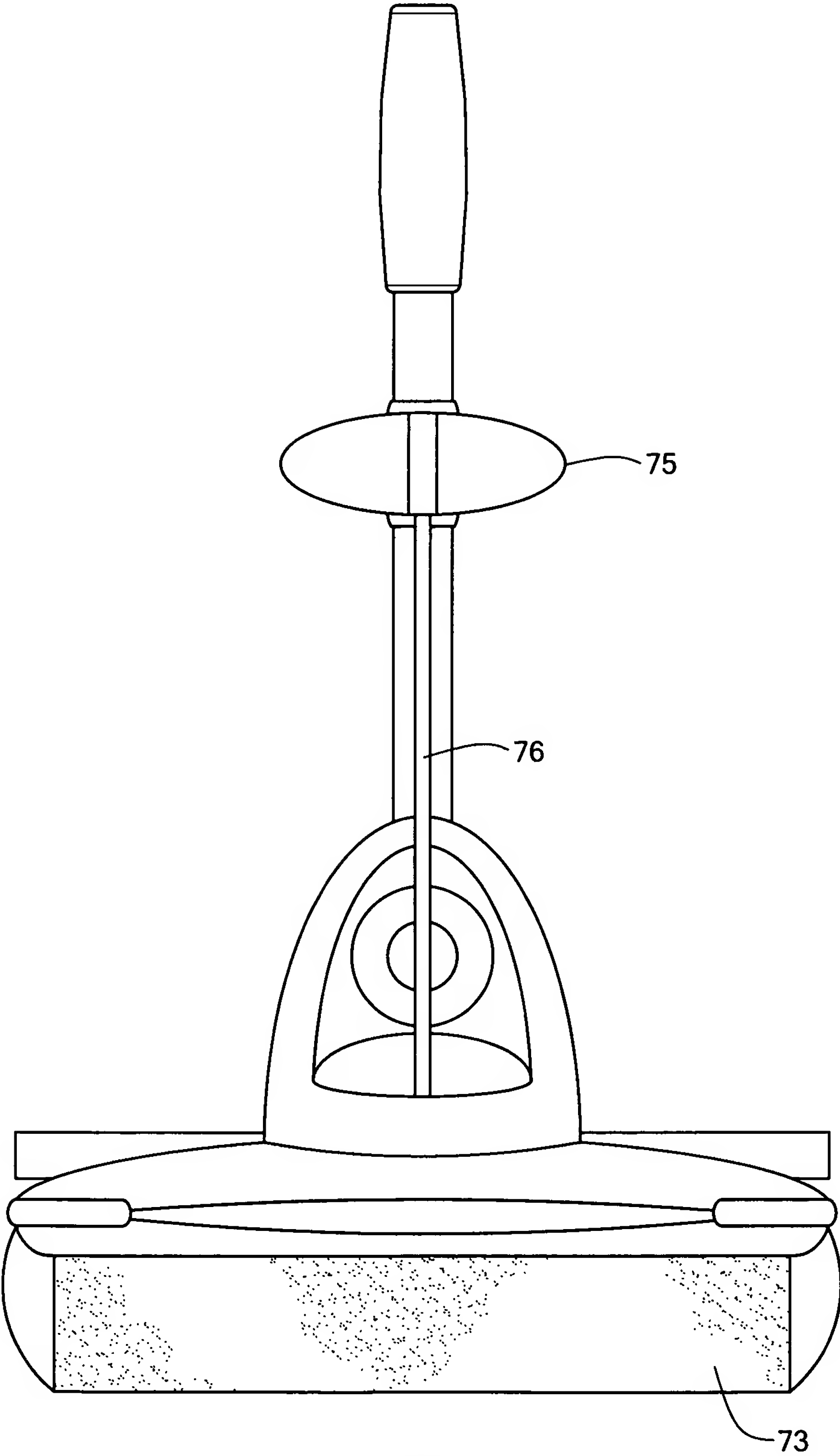


**FIG. 3**

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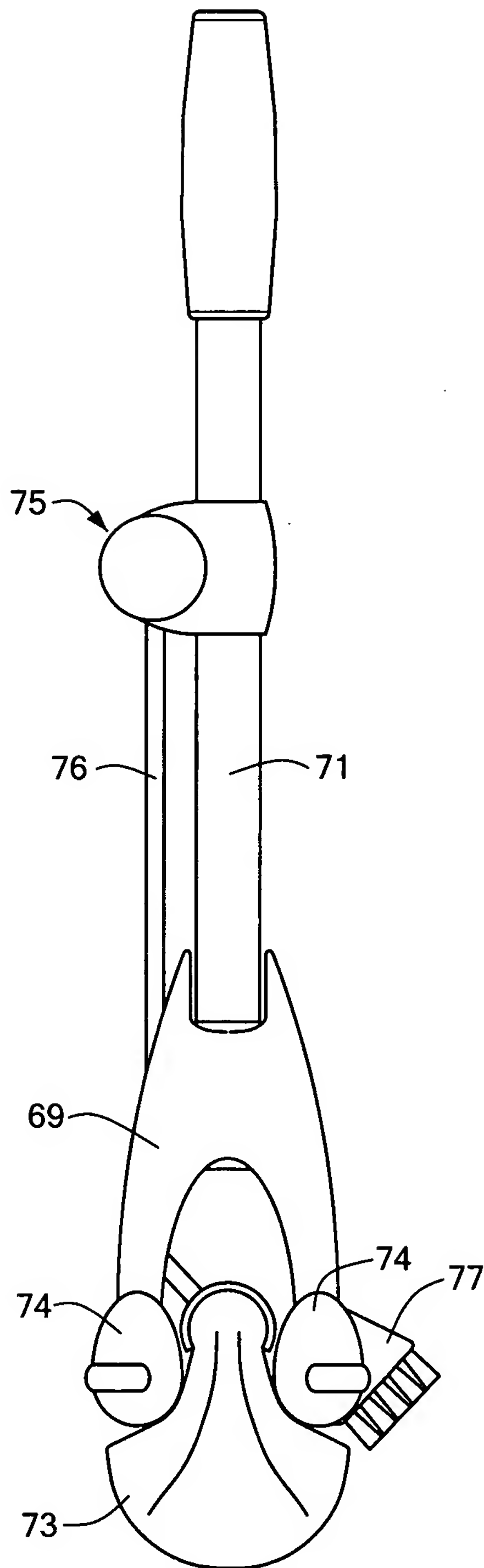
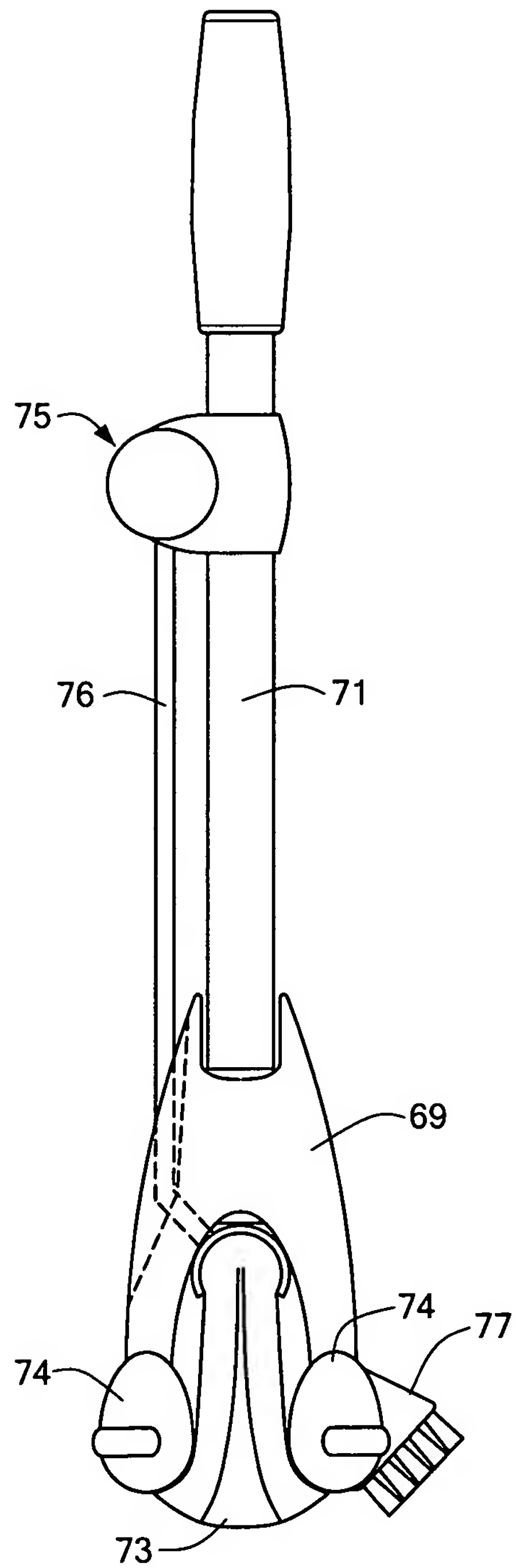
**FIG. 4**

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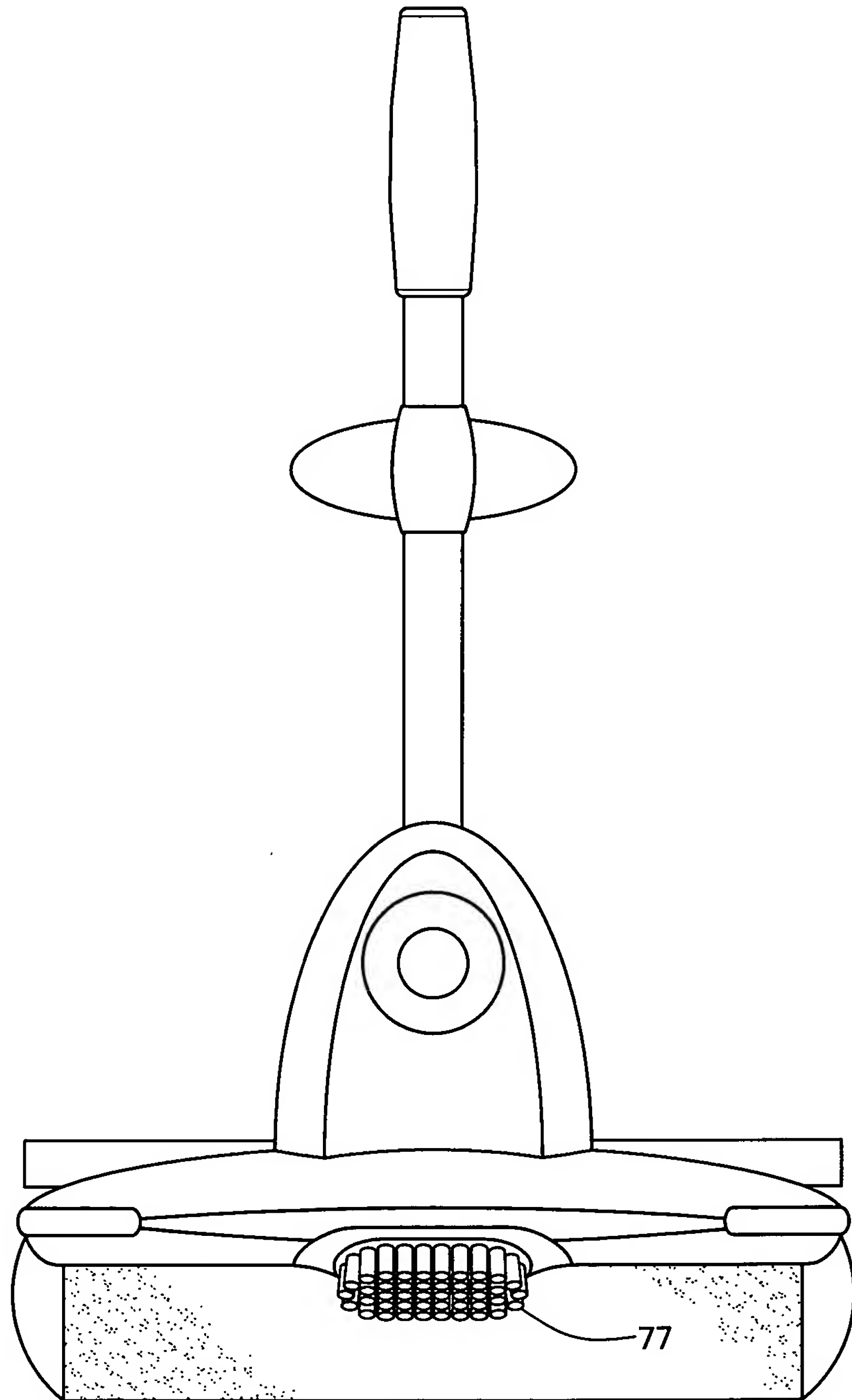


**FIG. 5**

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**FIG. 6****FIG. 7**

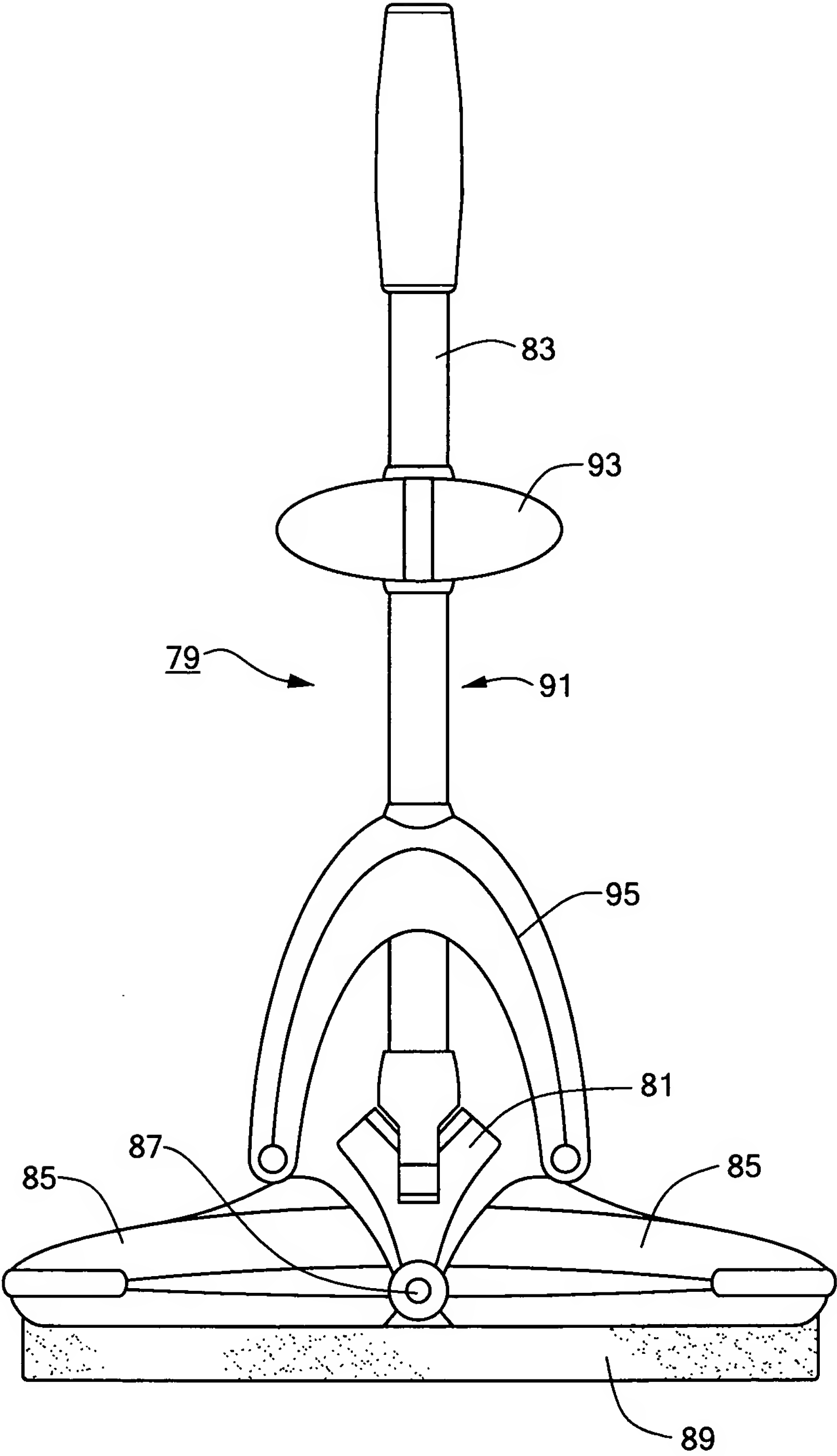
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**FIG. 8**

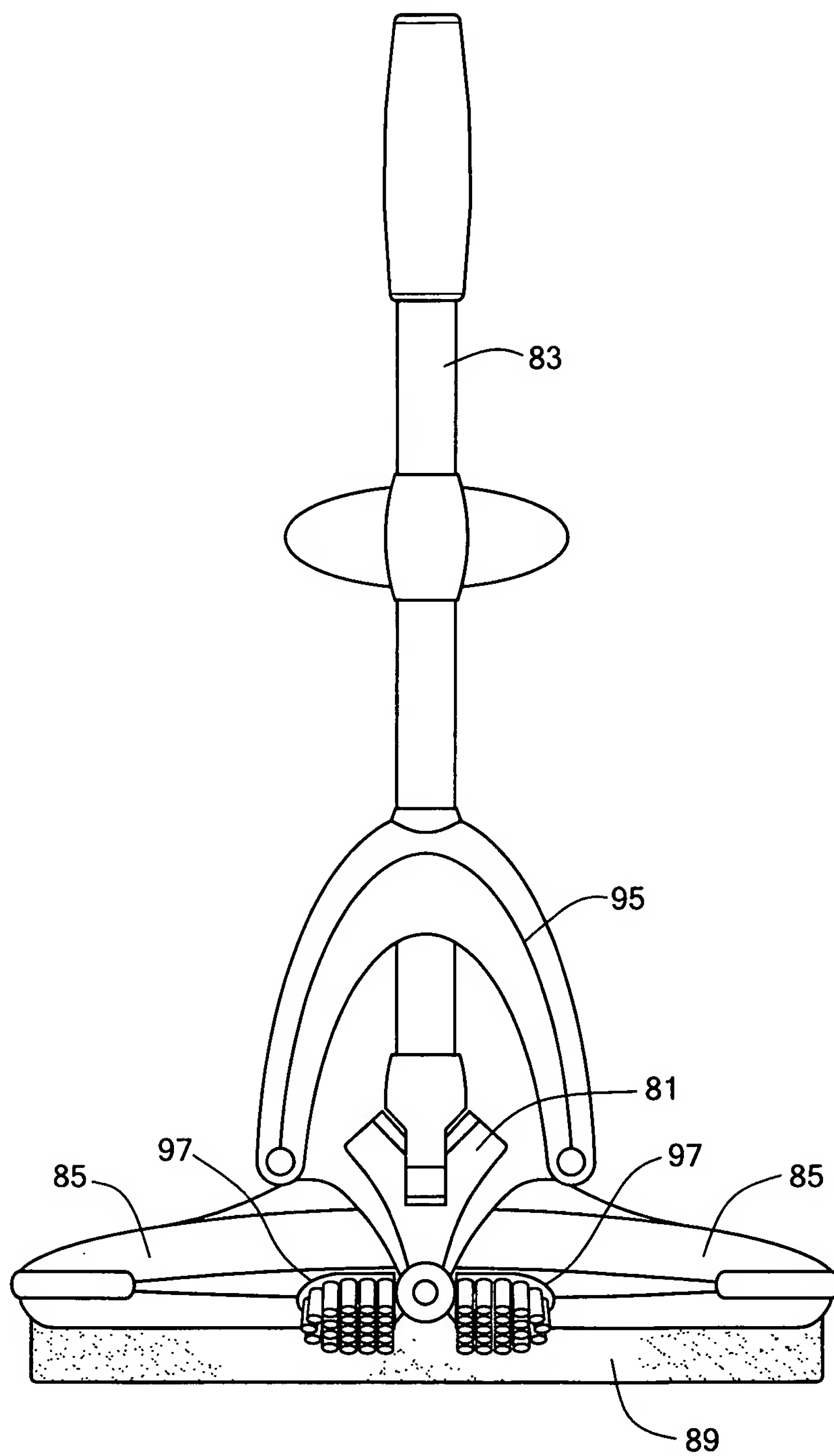


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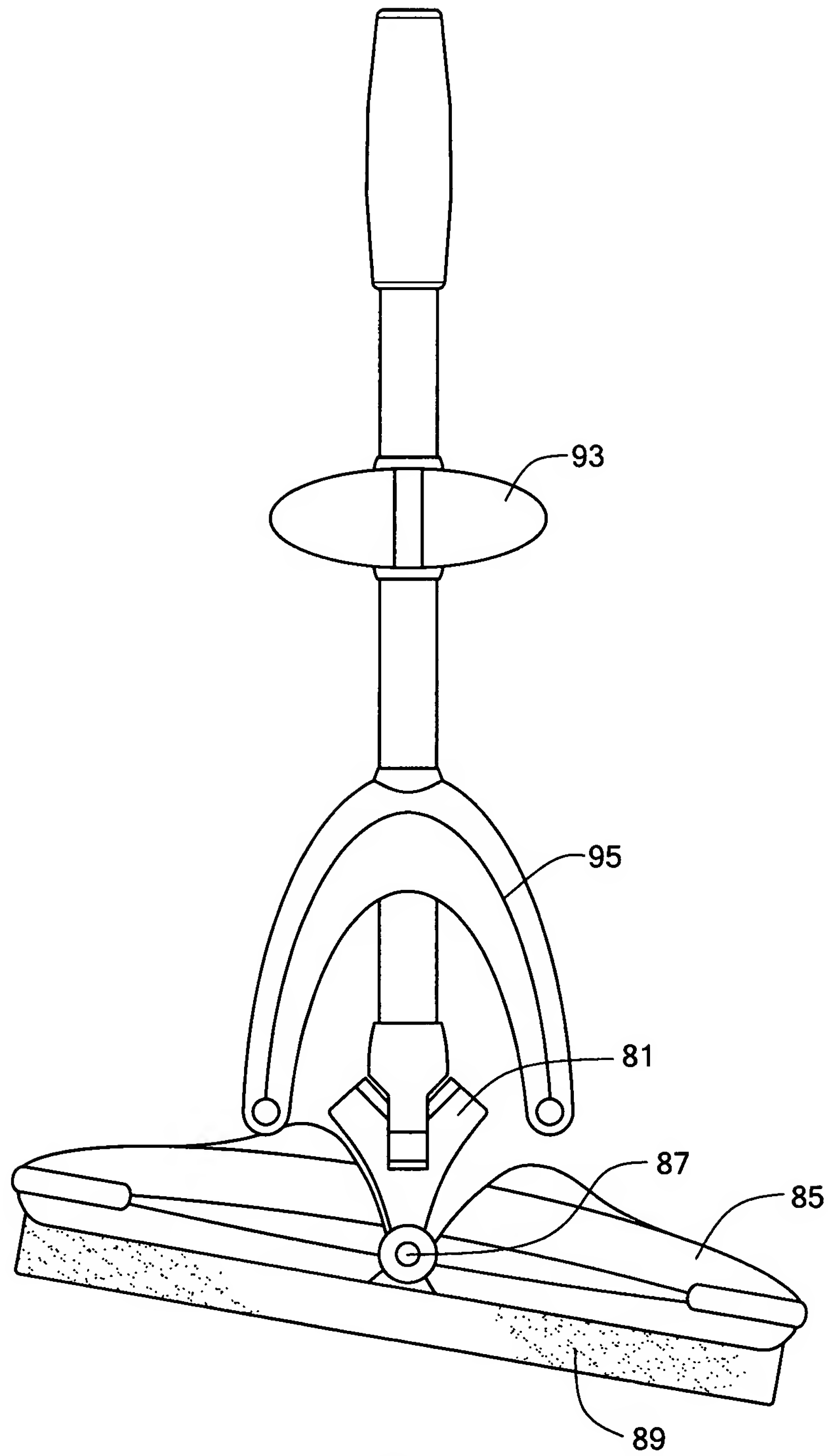


**FIG. 9**

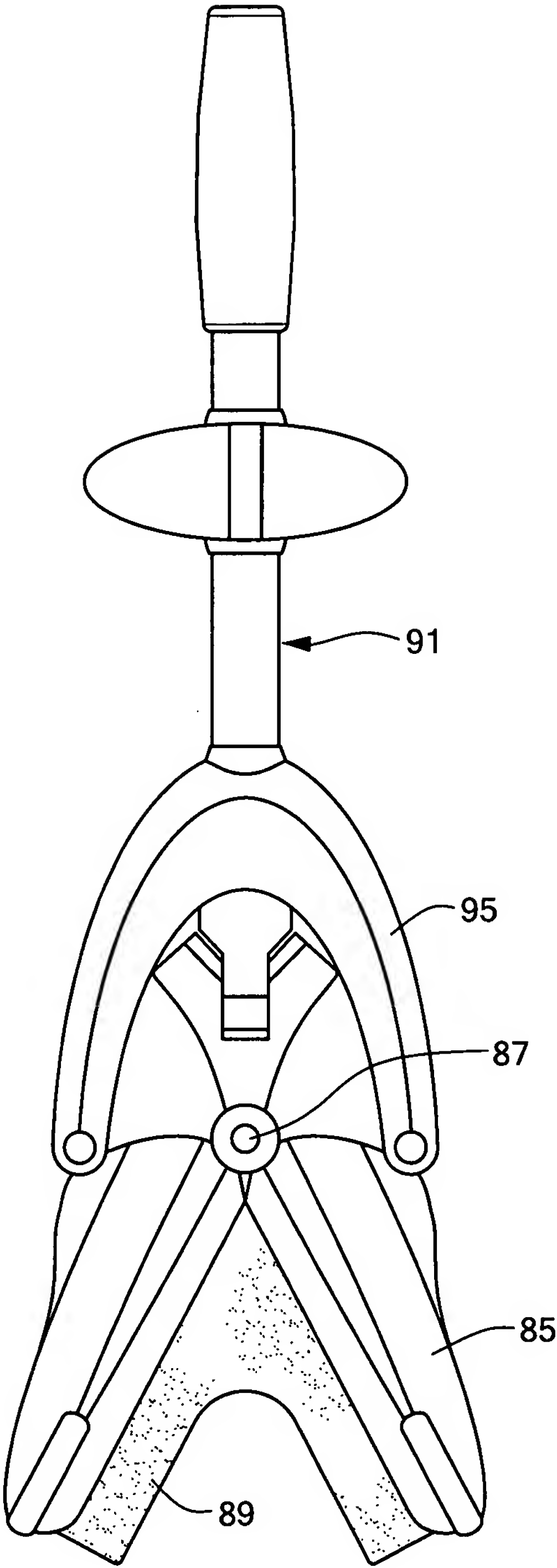
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**FIG. 10**

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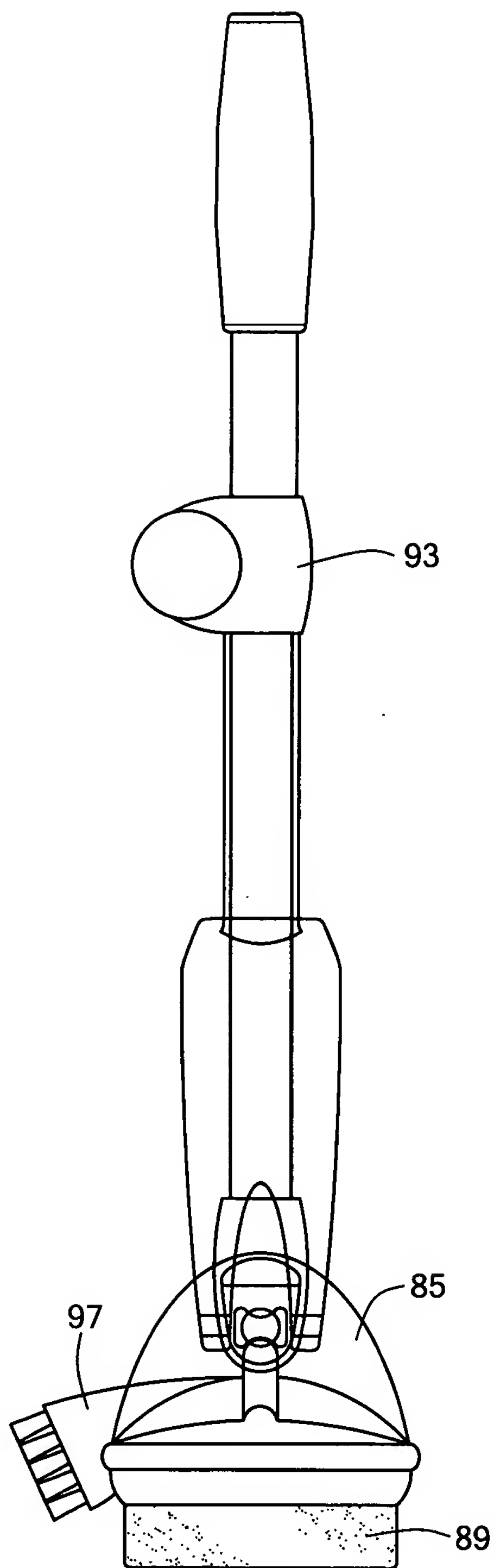
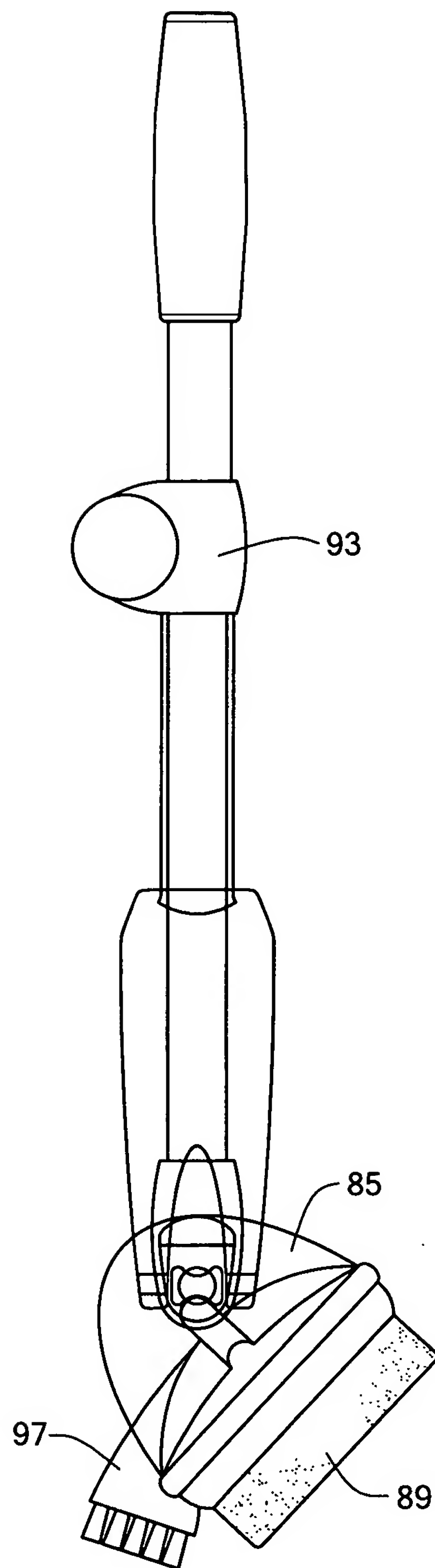
**FIG. 11**

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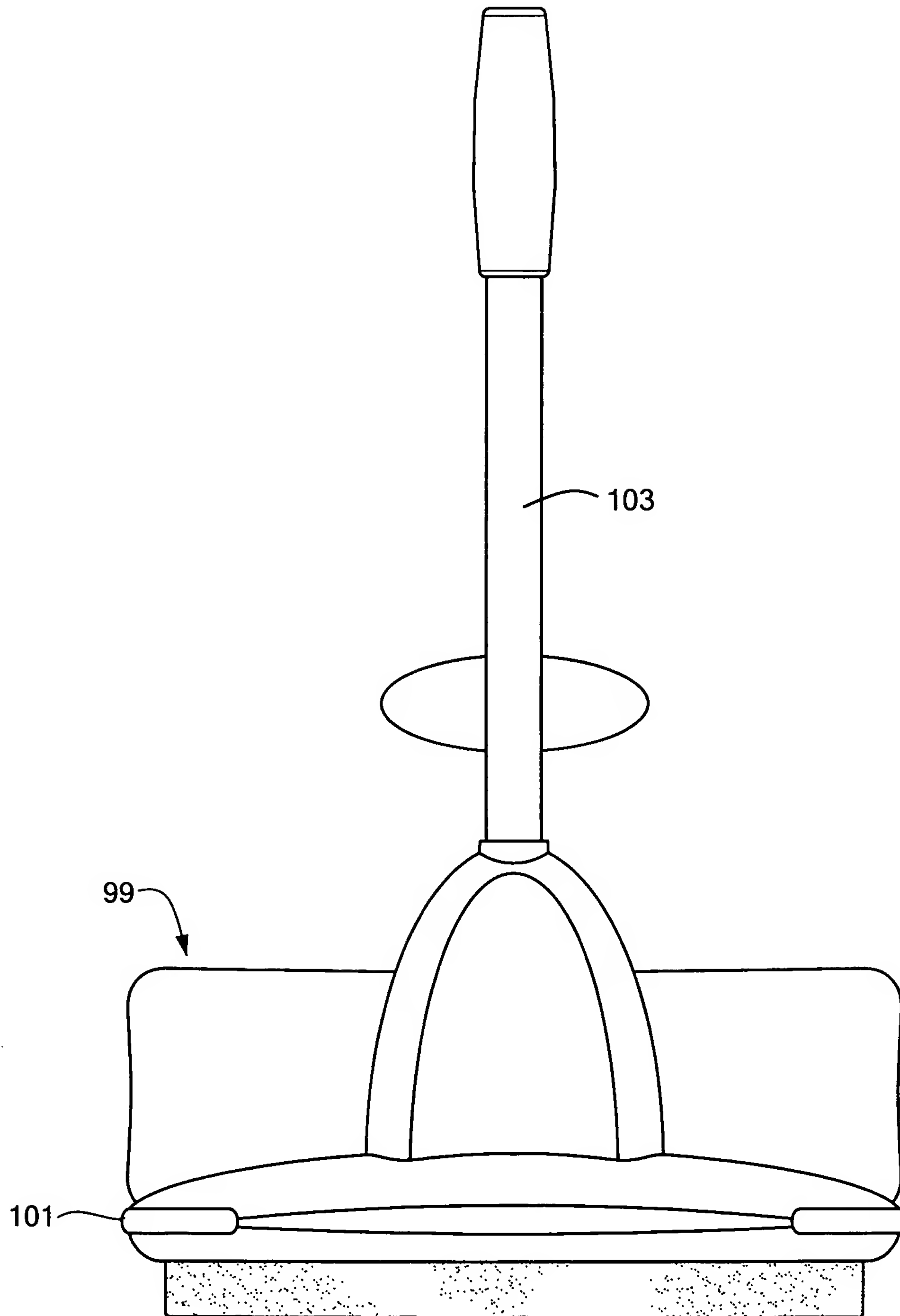


**FIG. 12**

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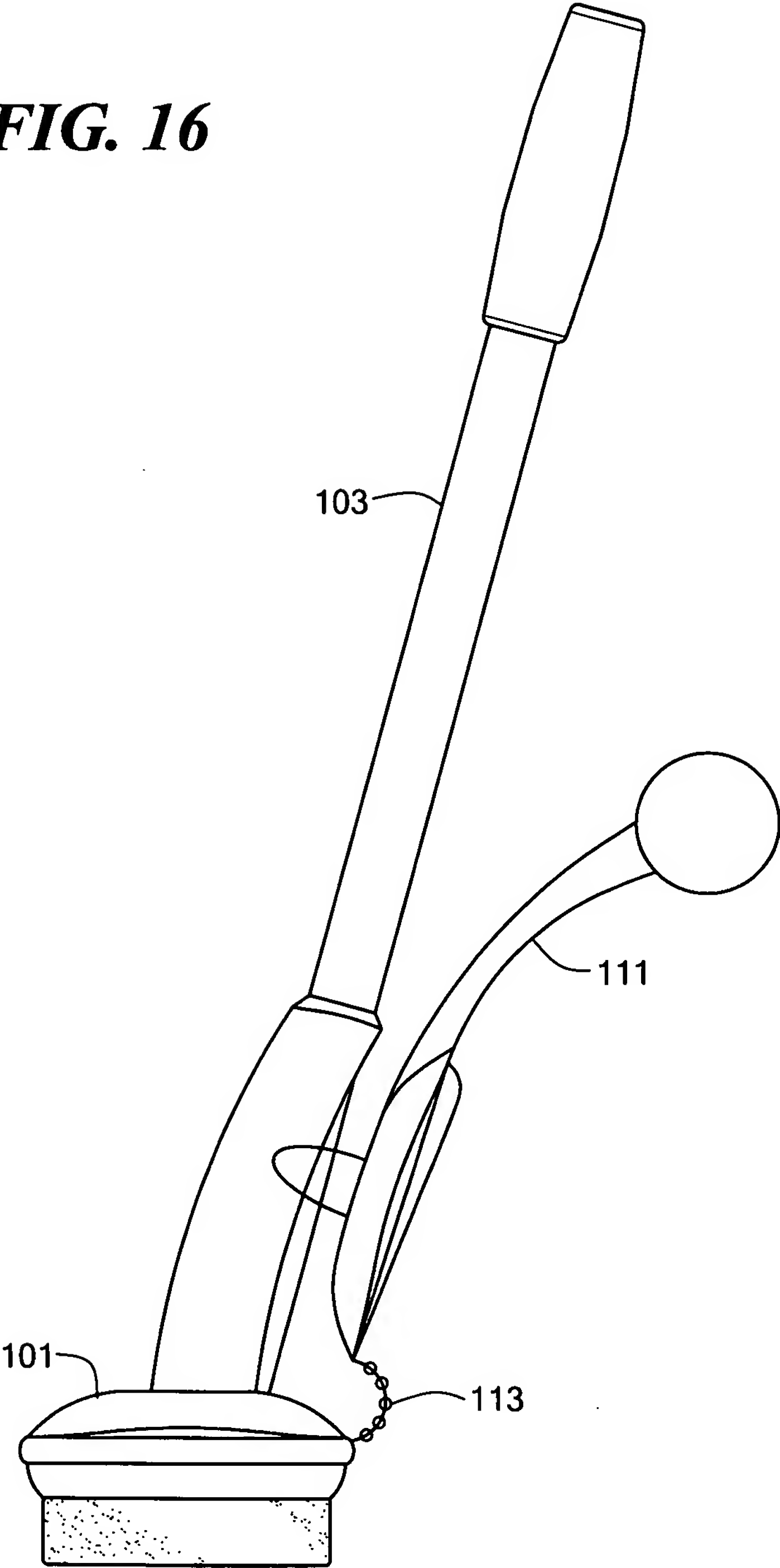
**FIG. 13****FIG. 14**

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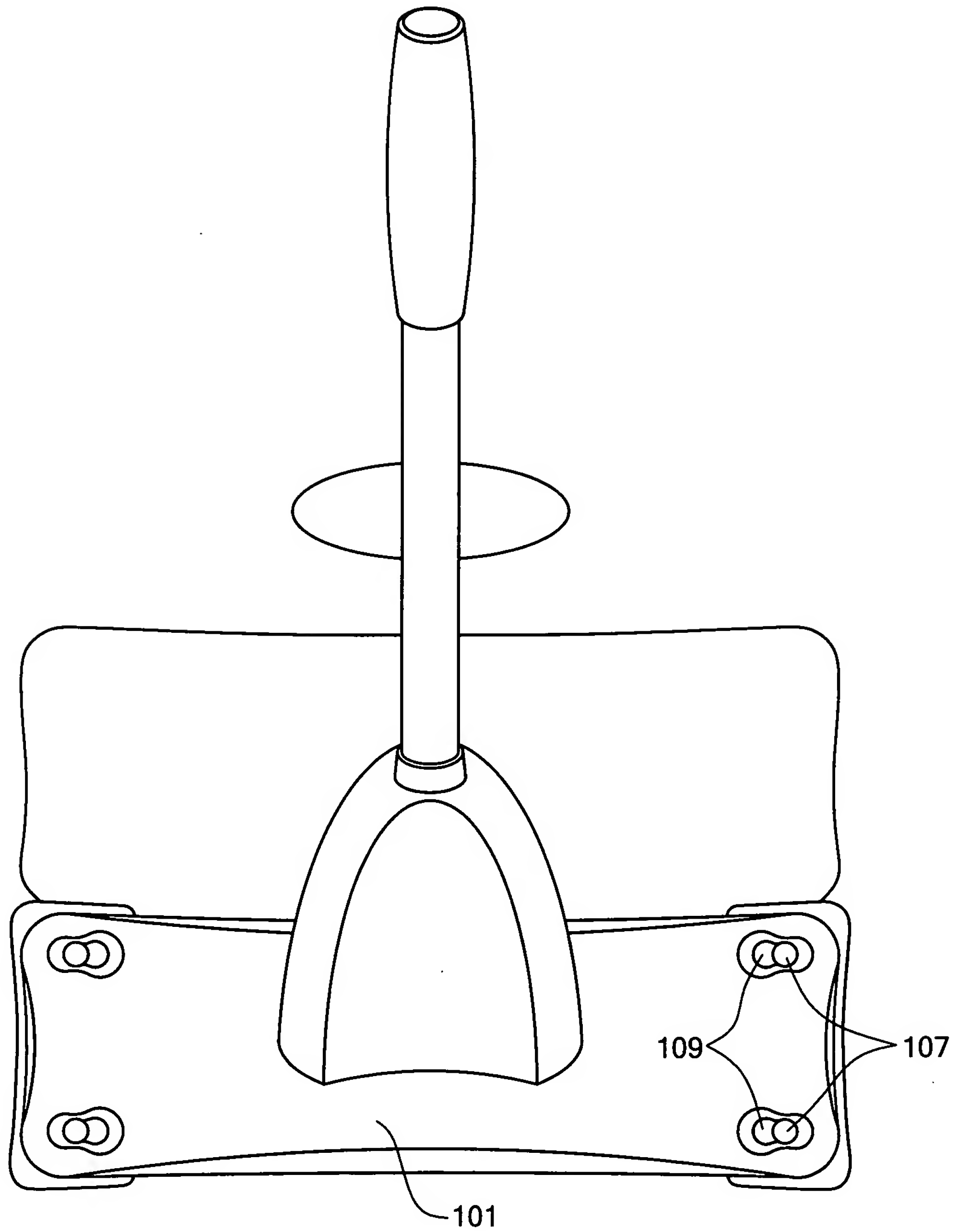
**FIG. 15**



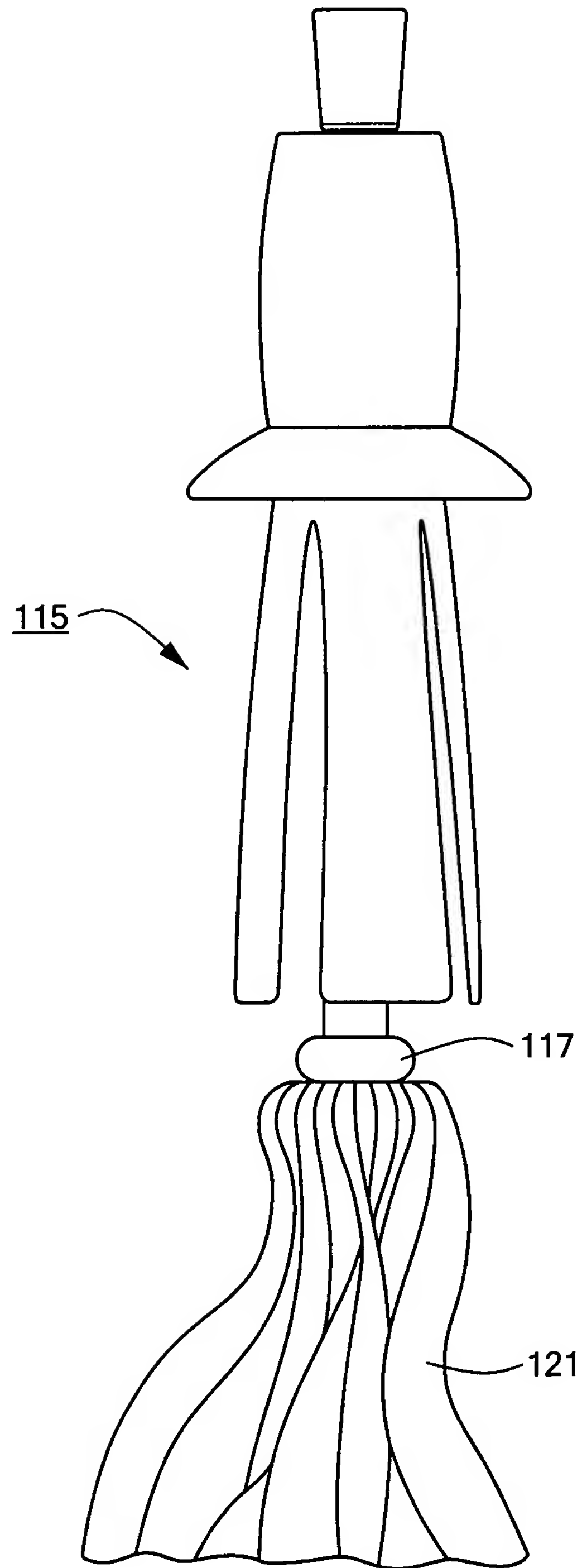
**FIG. 16**



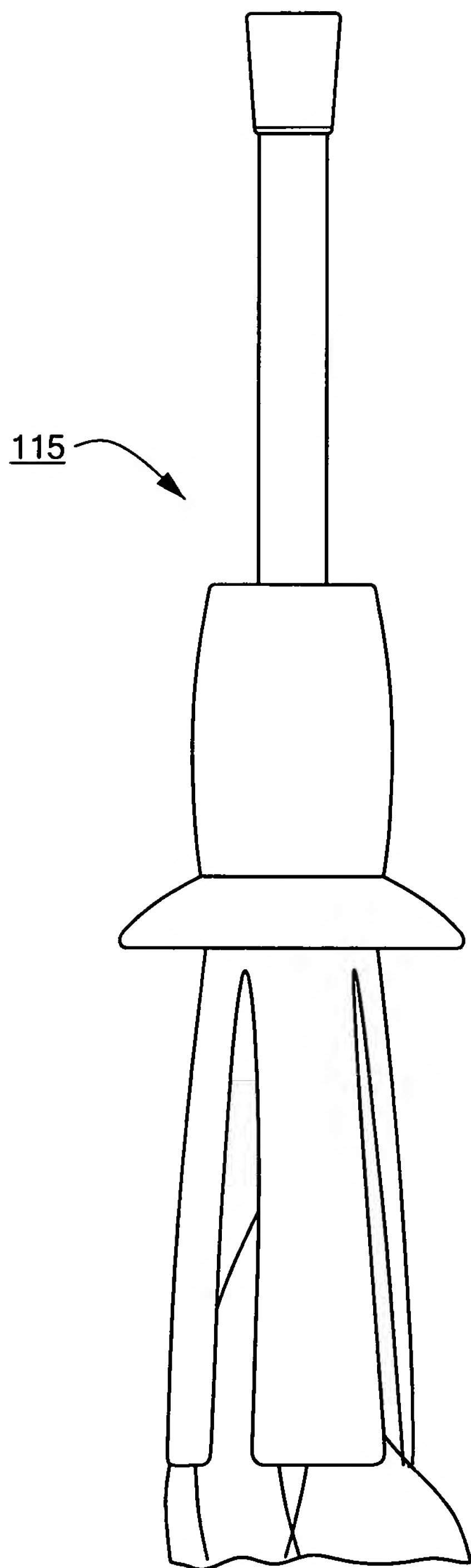
14/27

**FIG. 17**

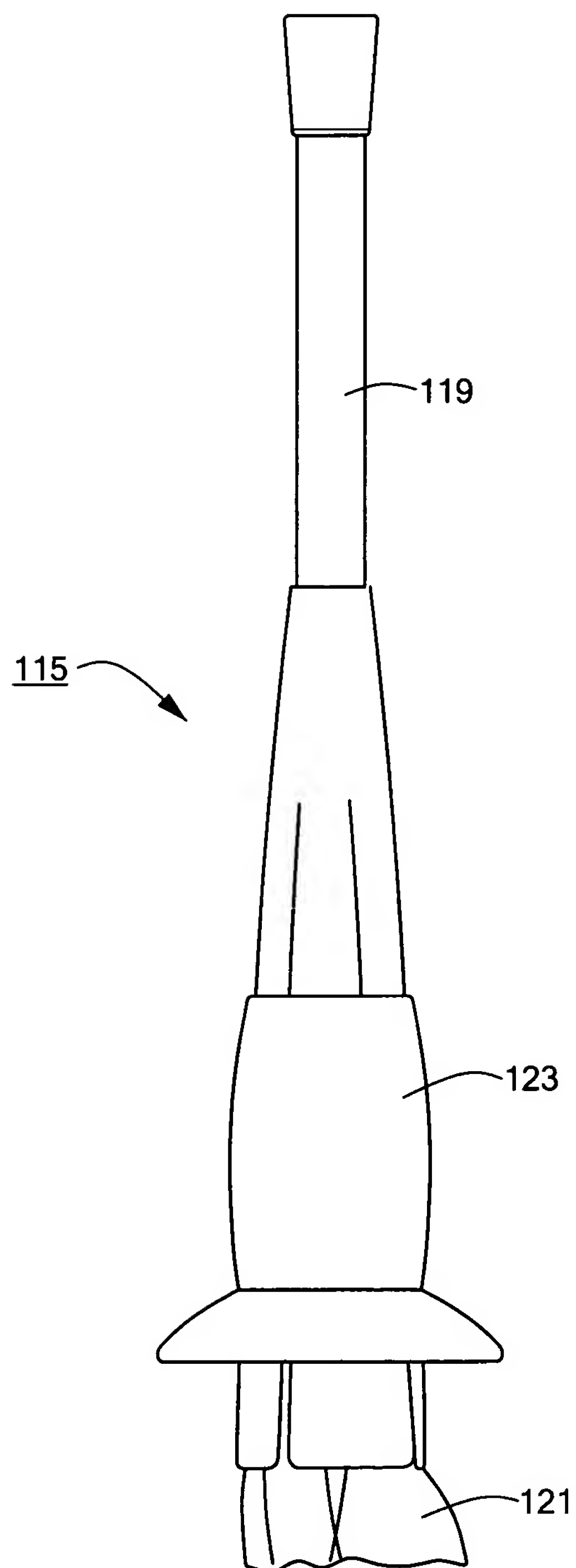
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**FIG. 18**

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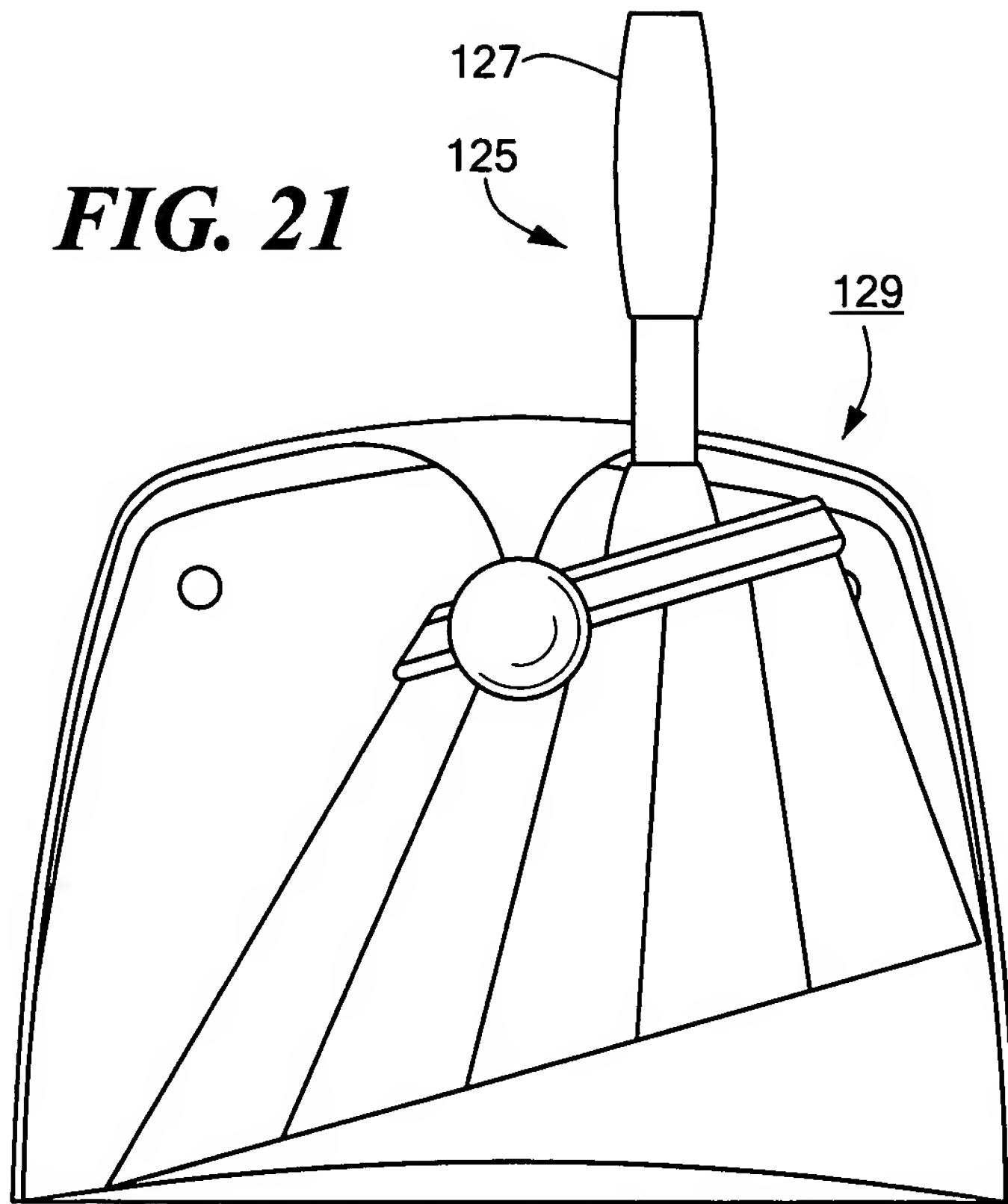
**FIG. 19**



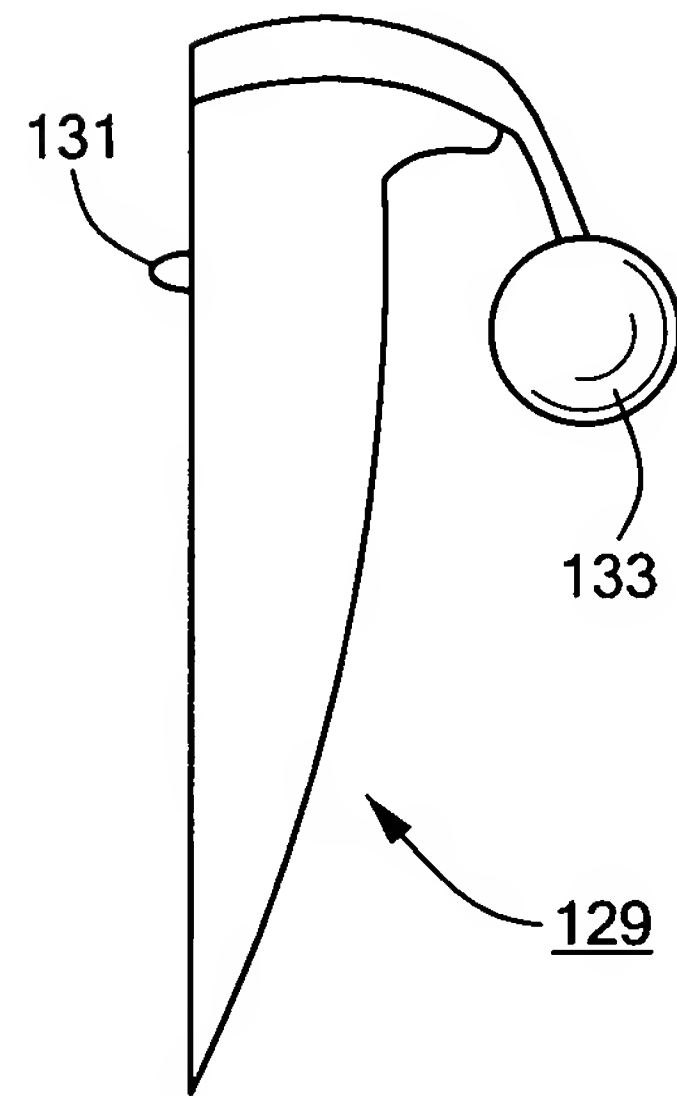
**FIG. 20**

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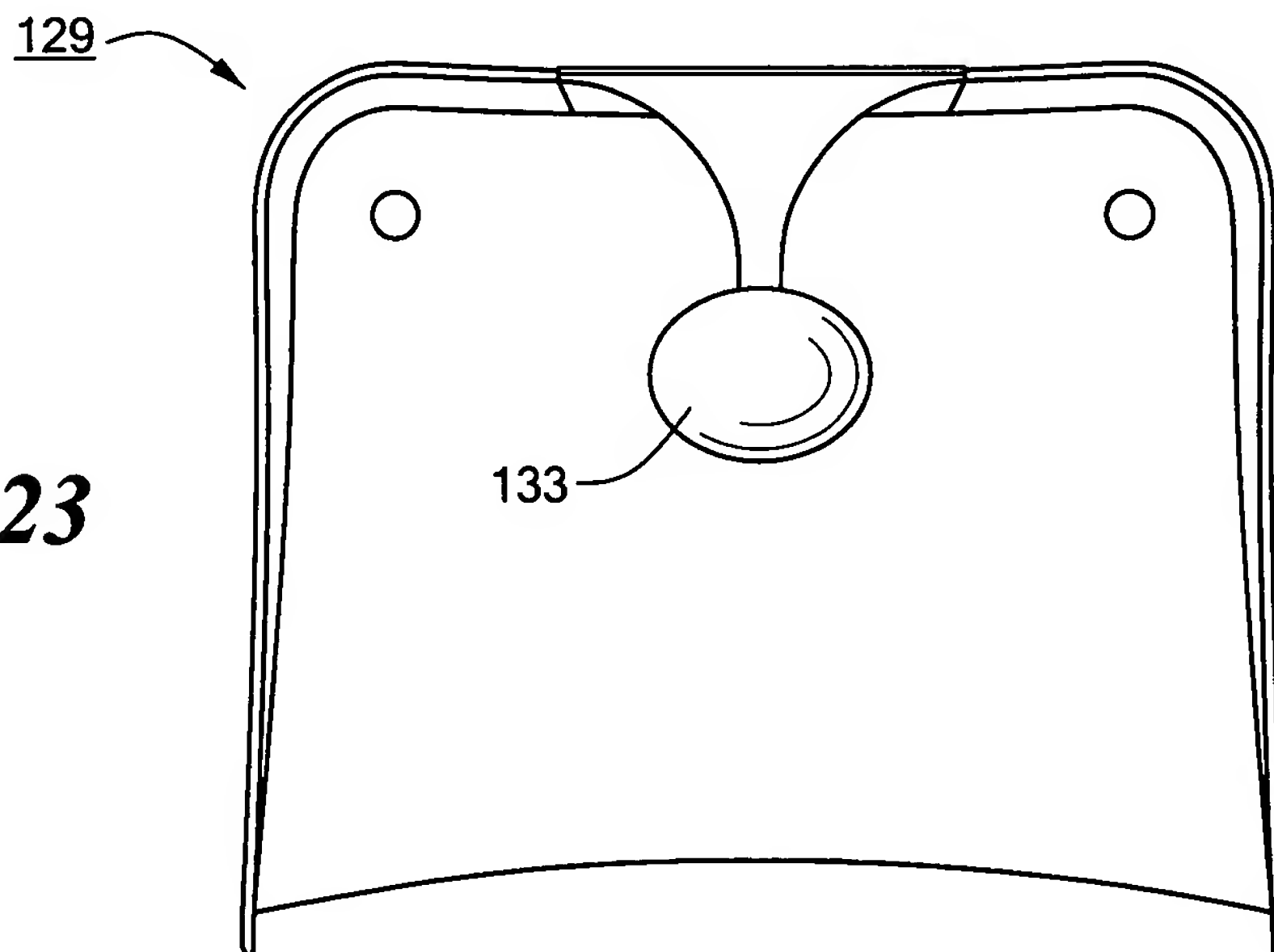
**FIG. 21**

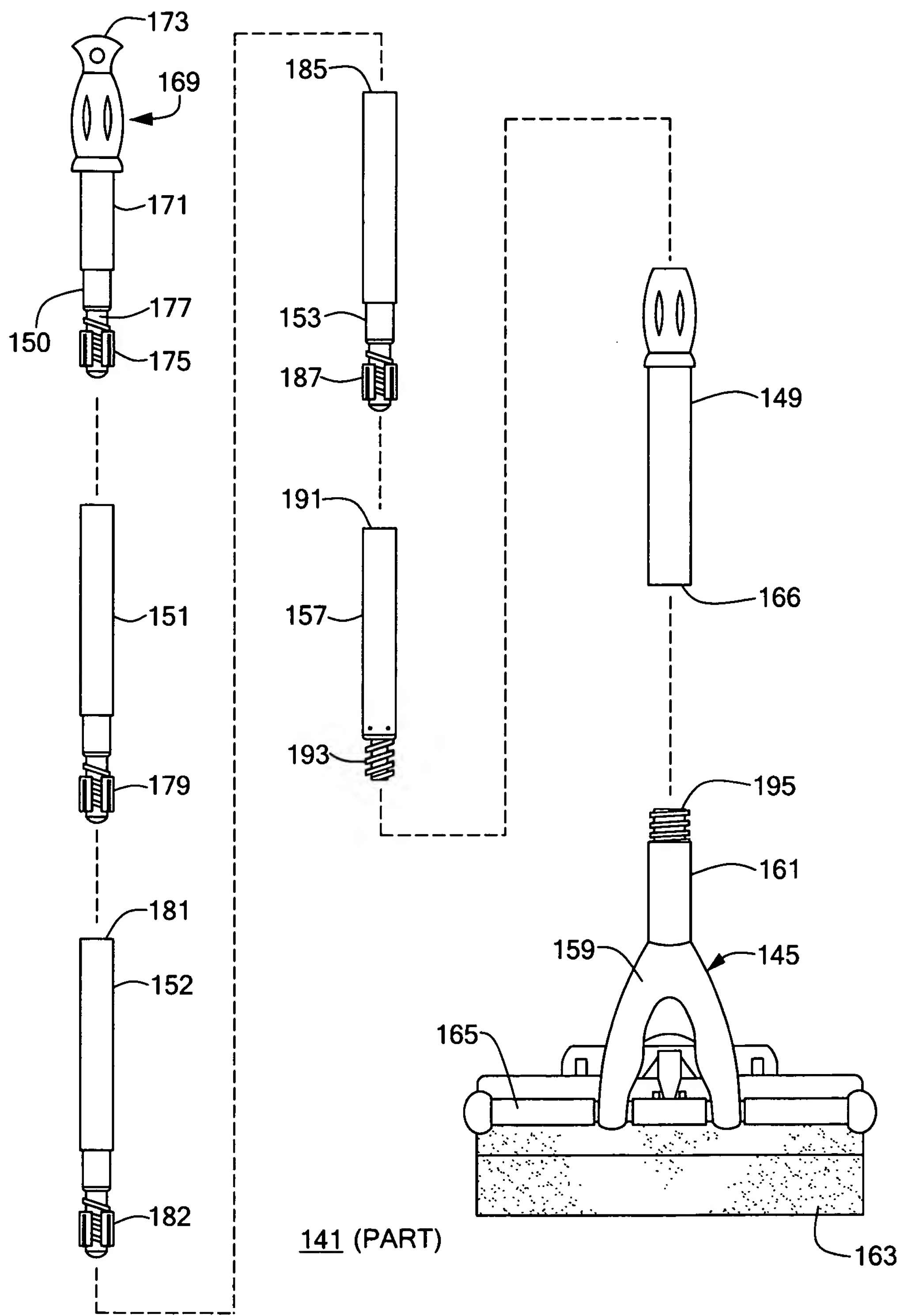


**FIG. 22**



**FIG. 23**

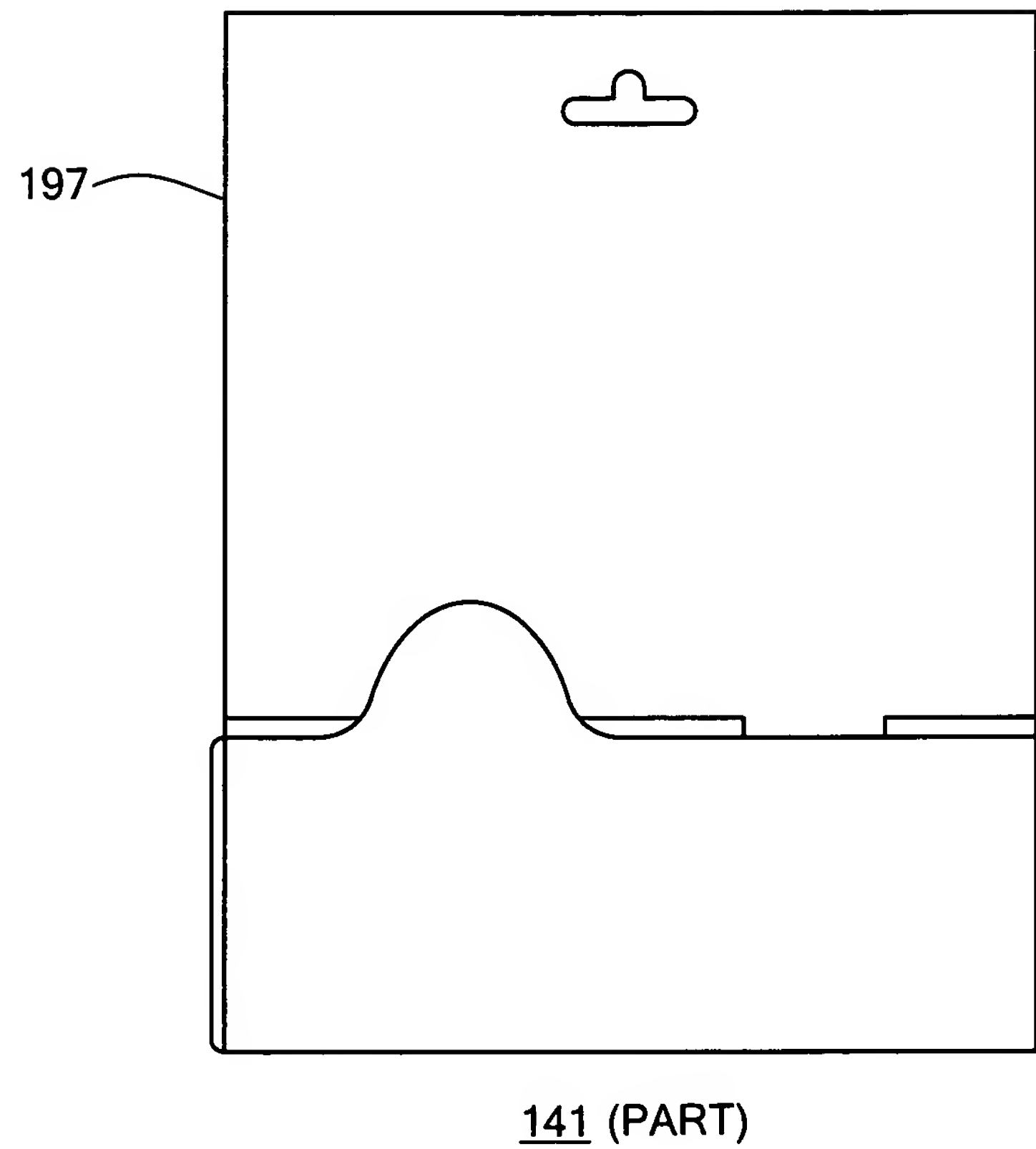


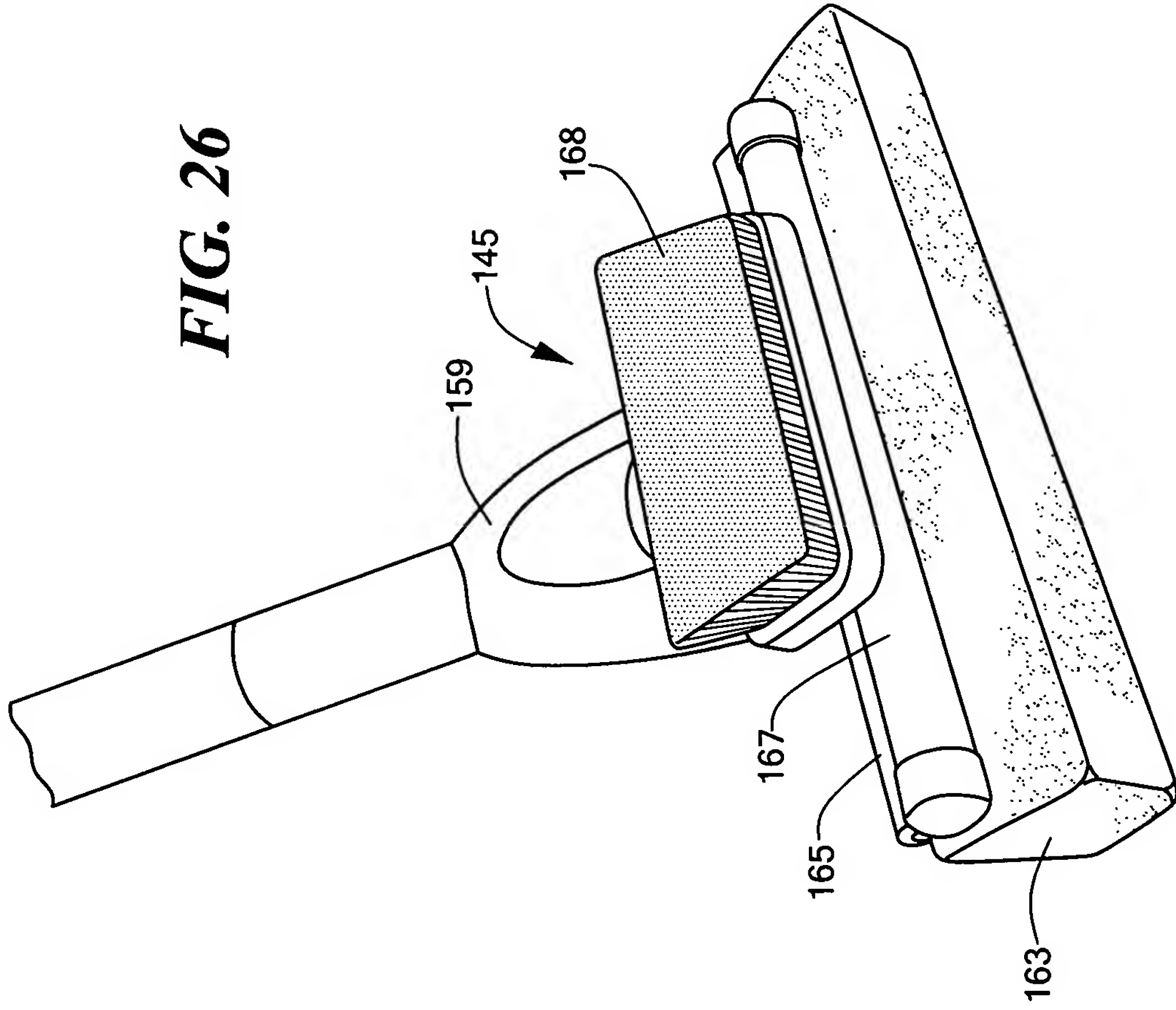
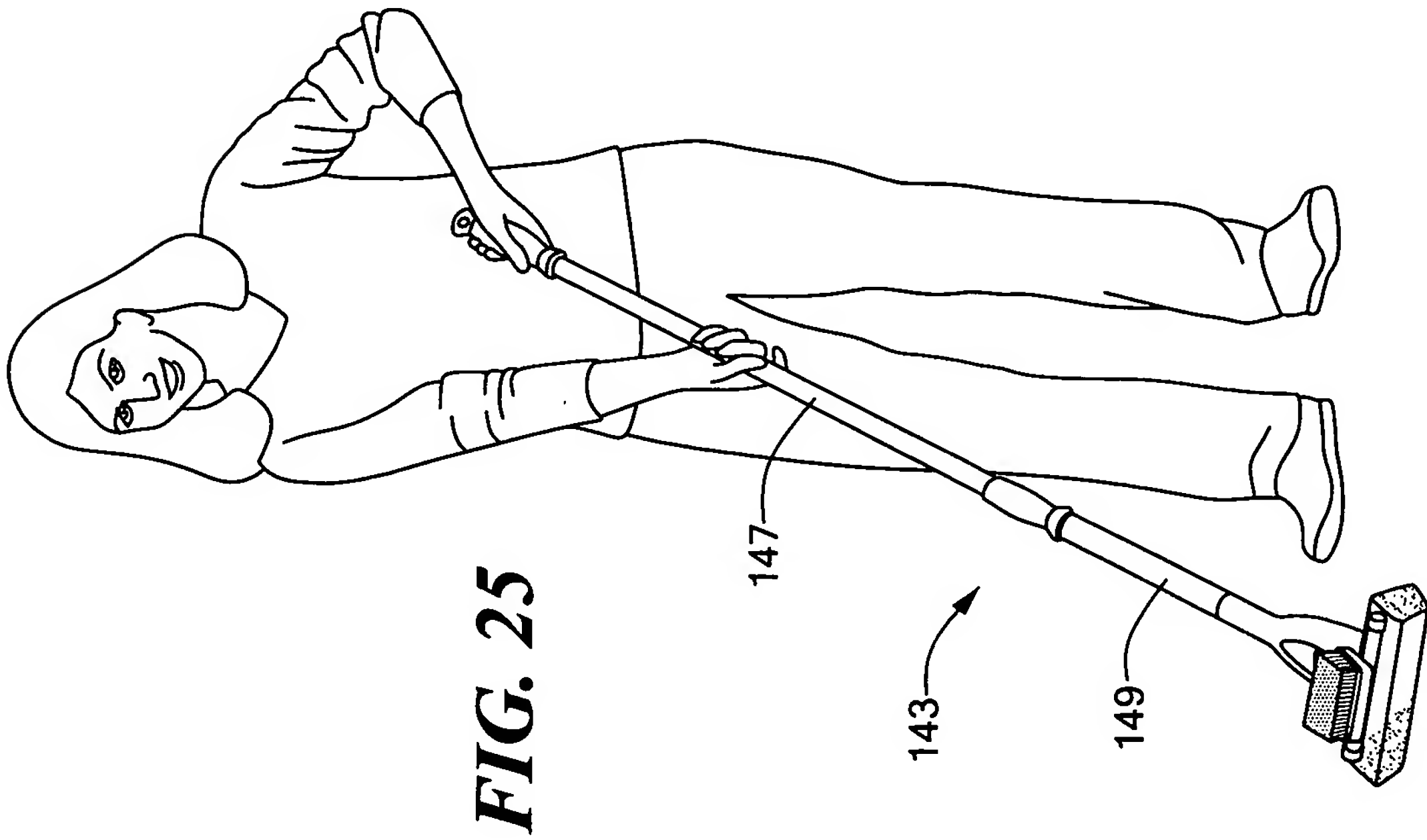


**FIG. 24(A)**



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***FIG. 24(B)***



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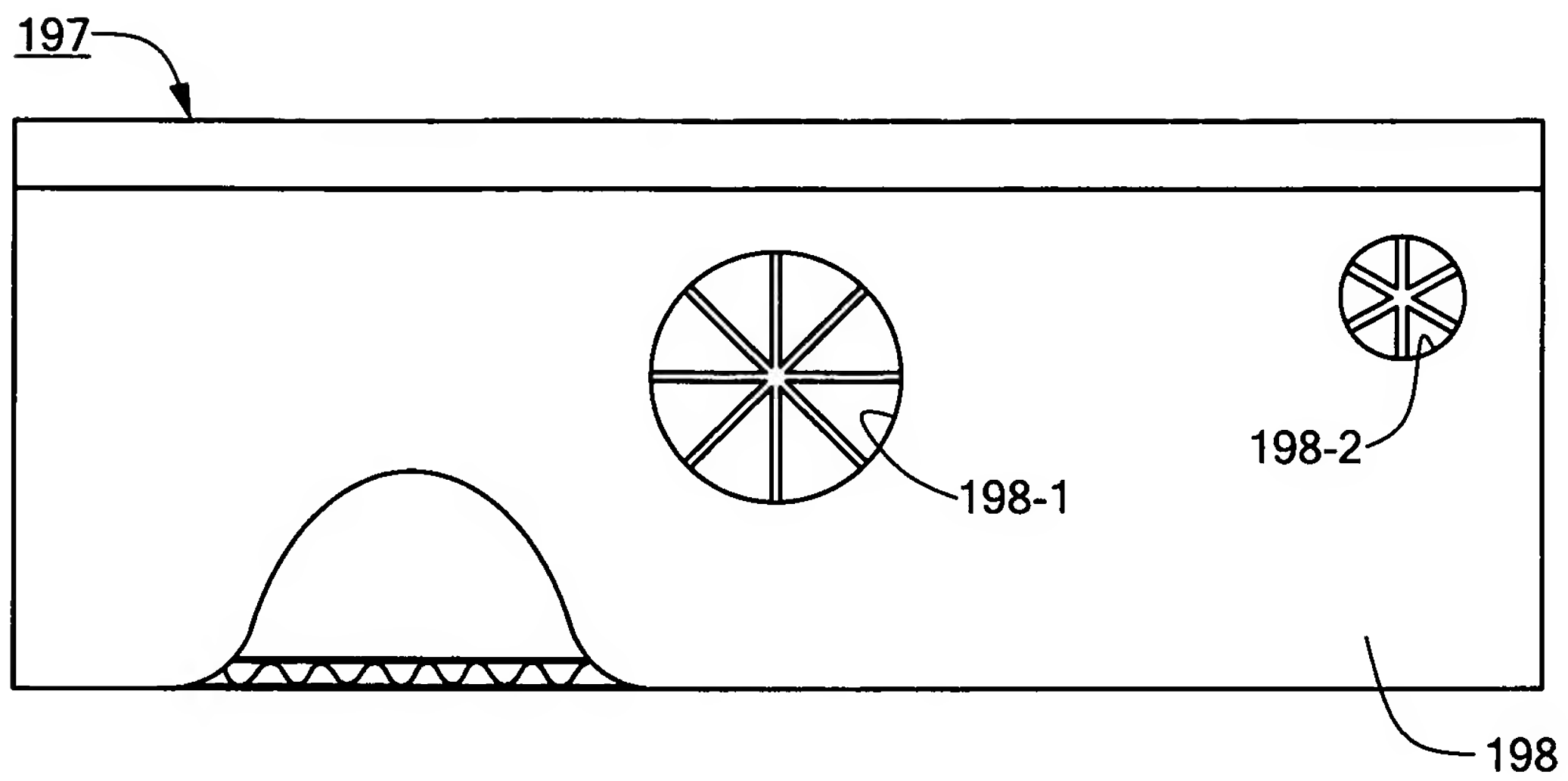
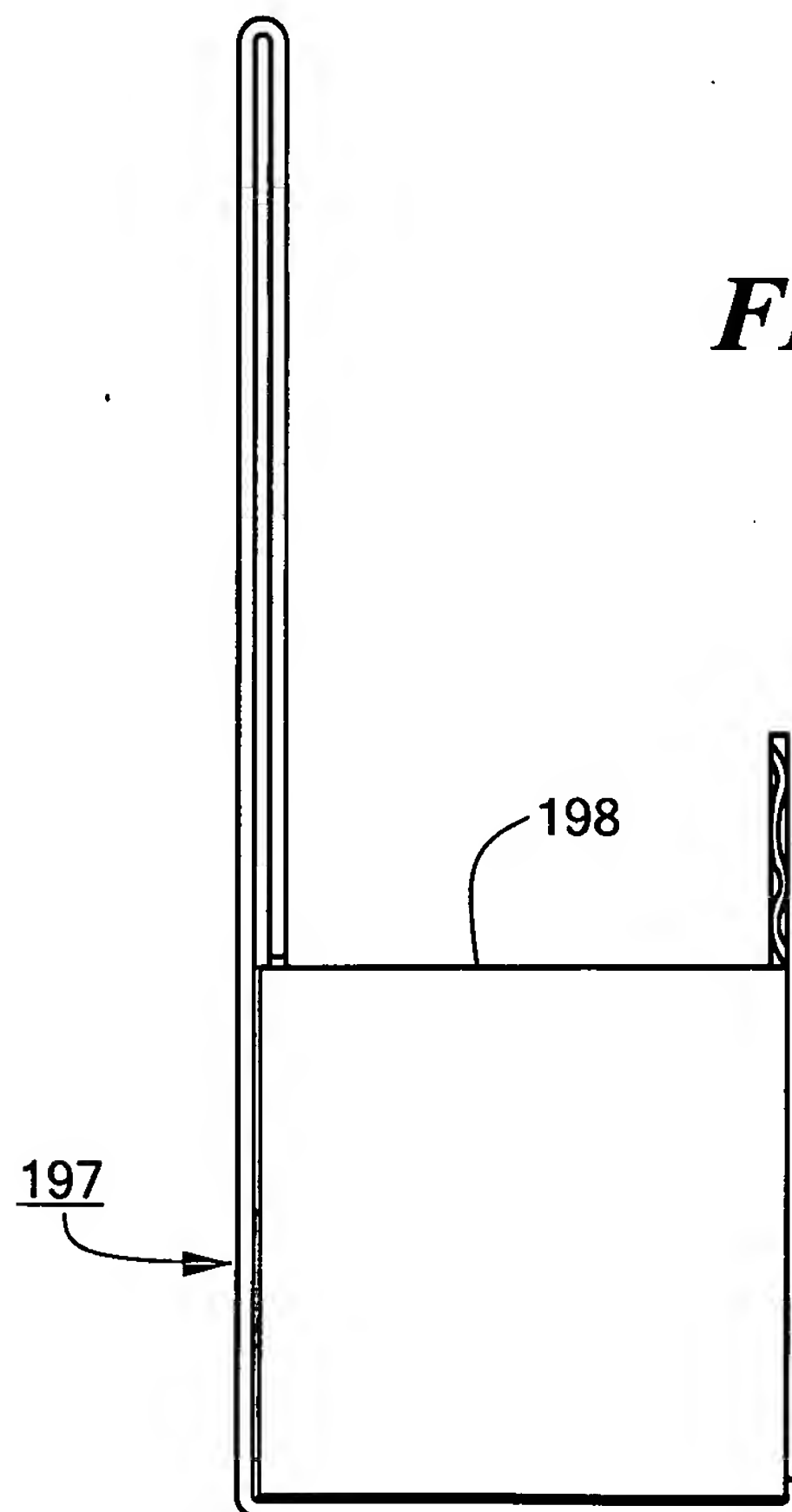
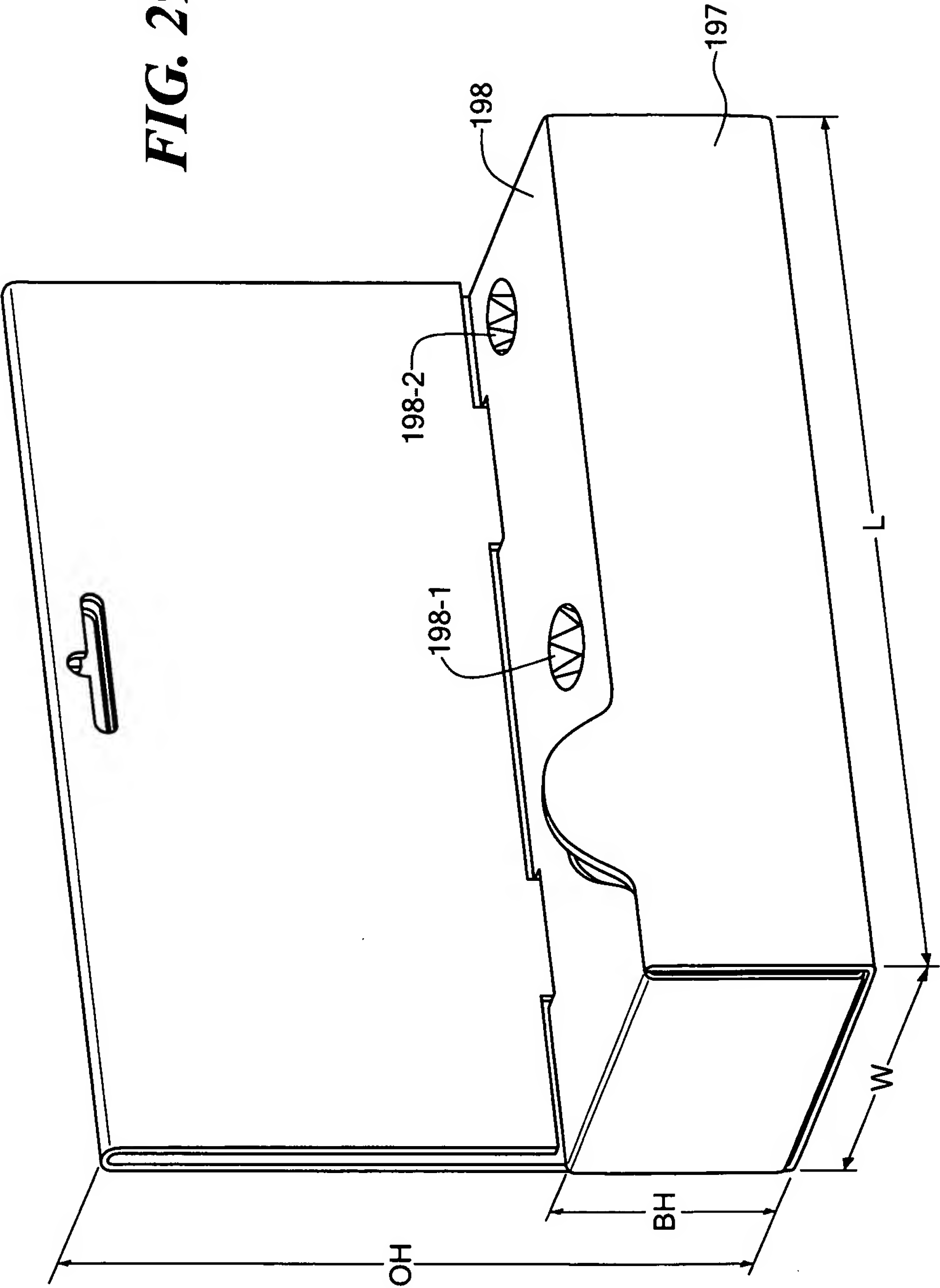
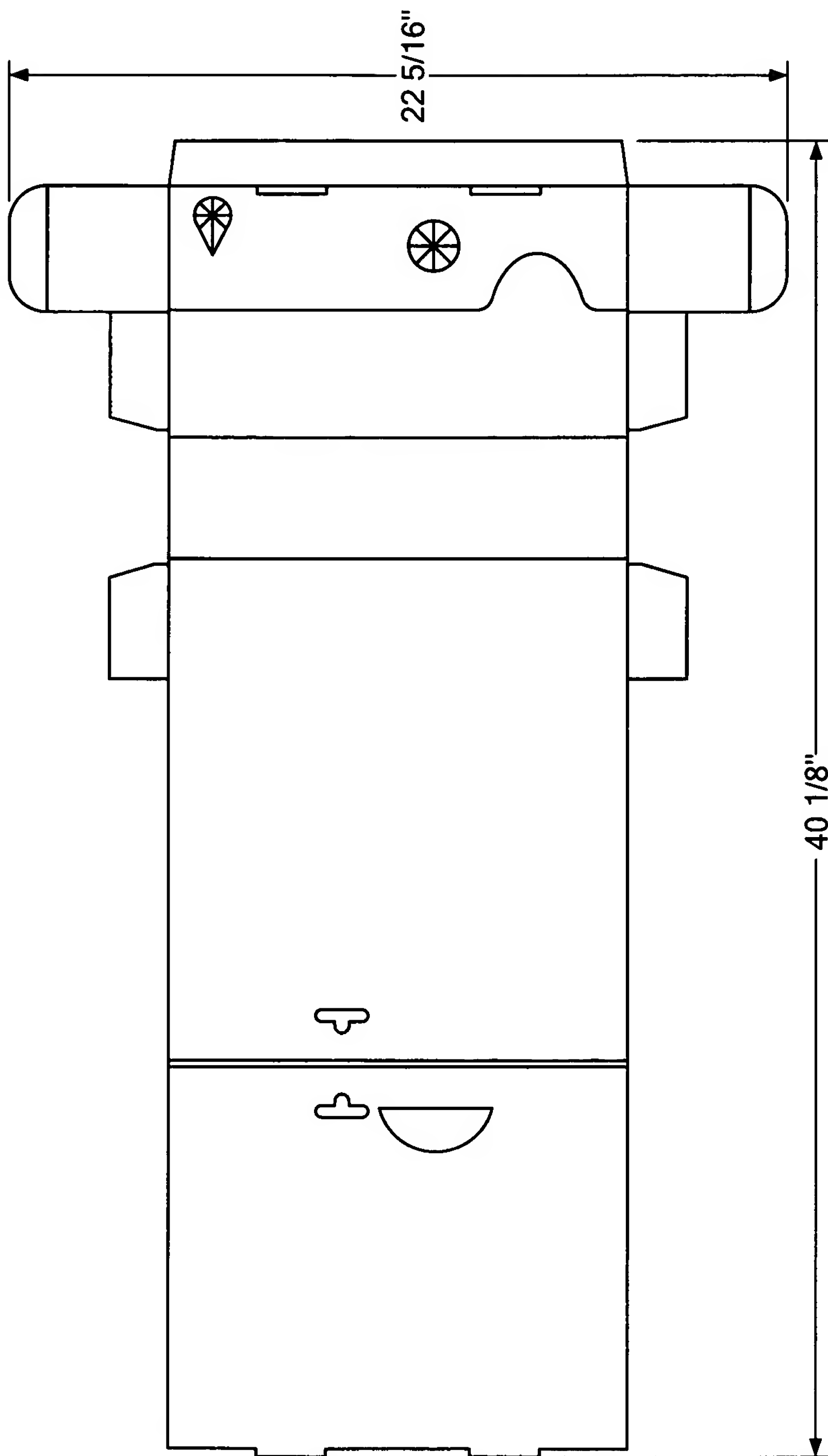
**FIG. 27****FIG. 28**

FIG. 29



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**FIG. 30**

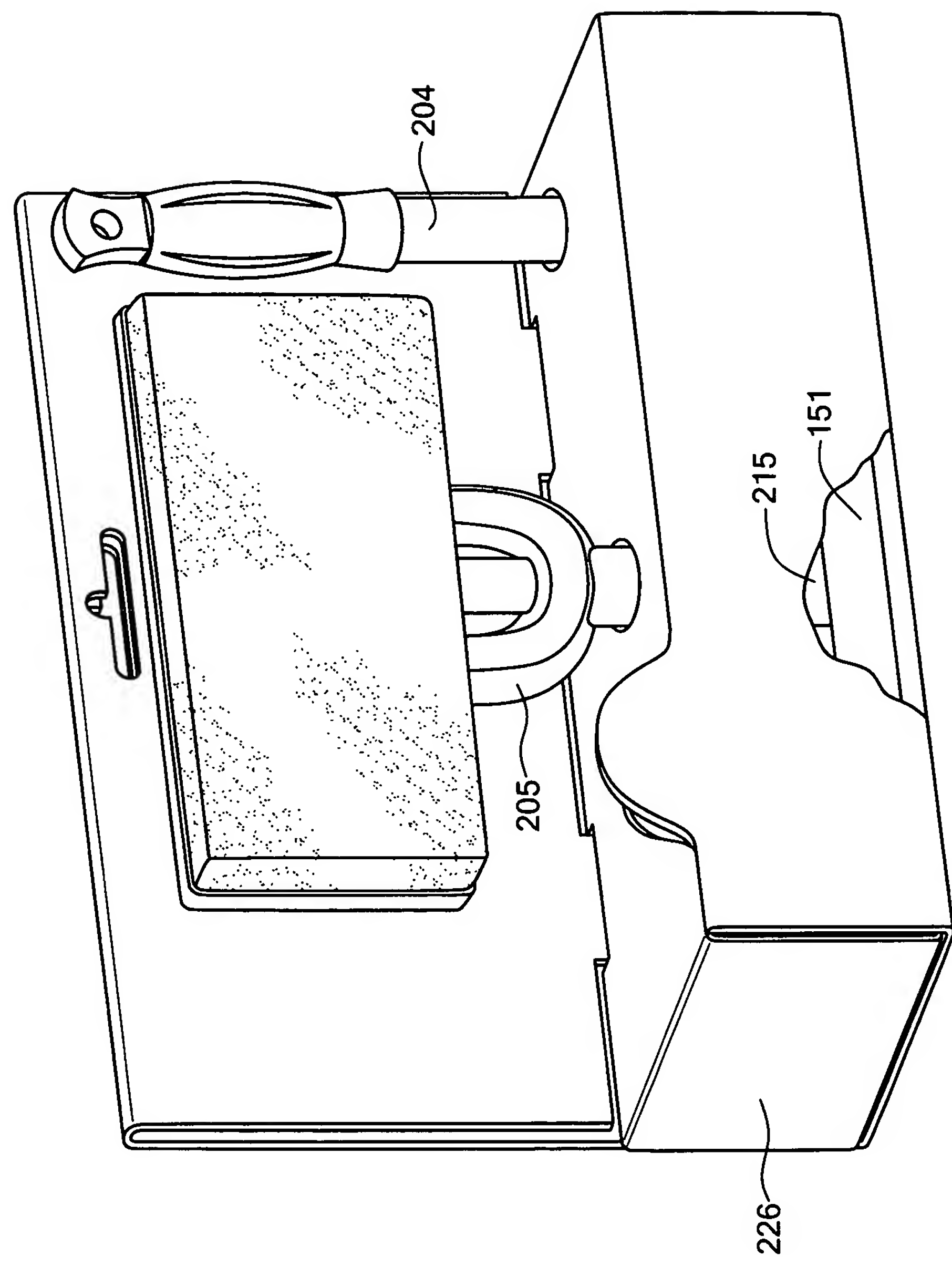
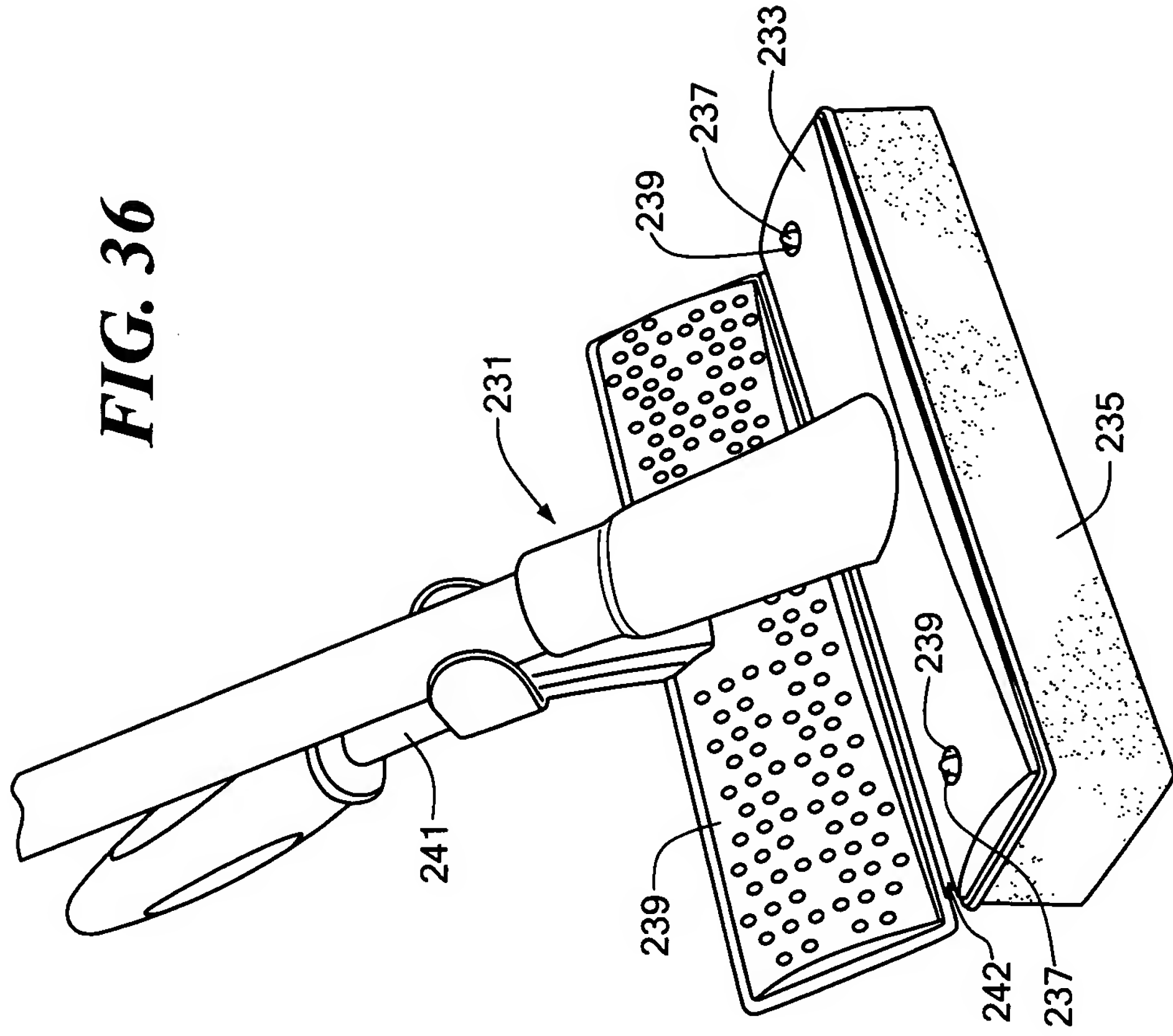
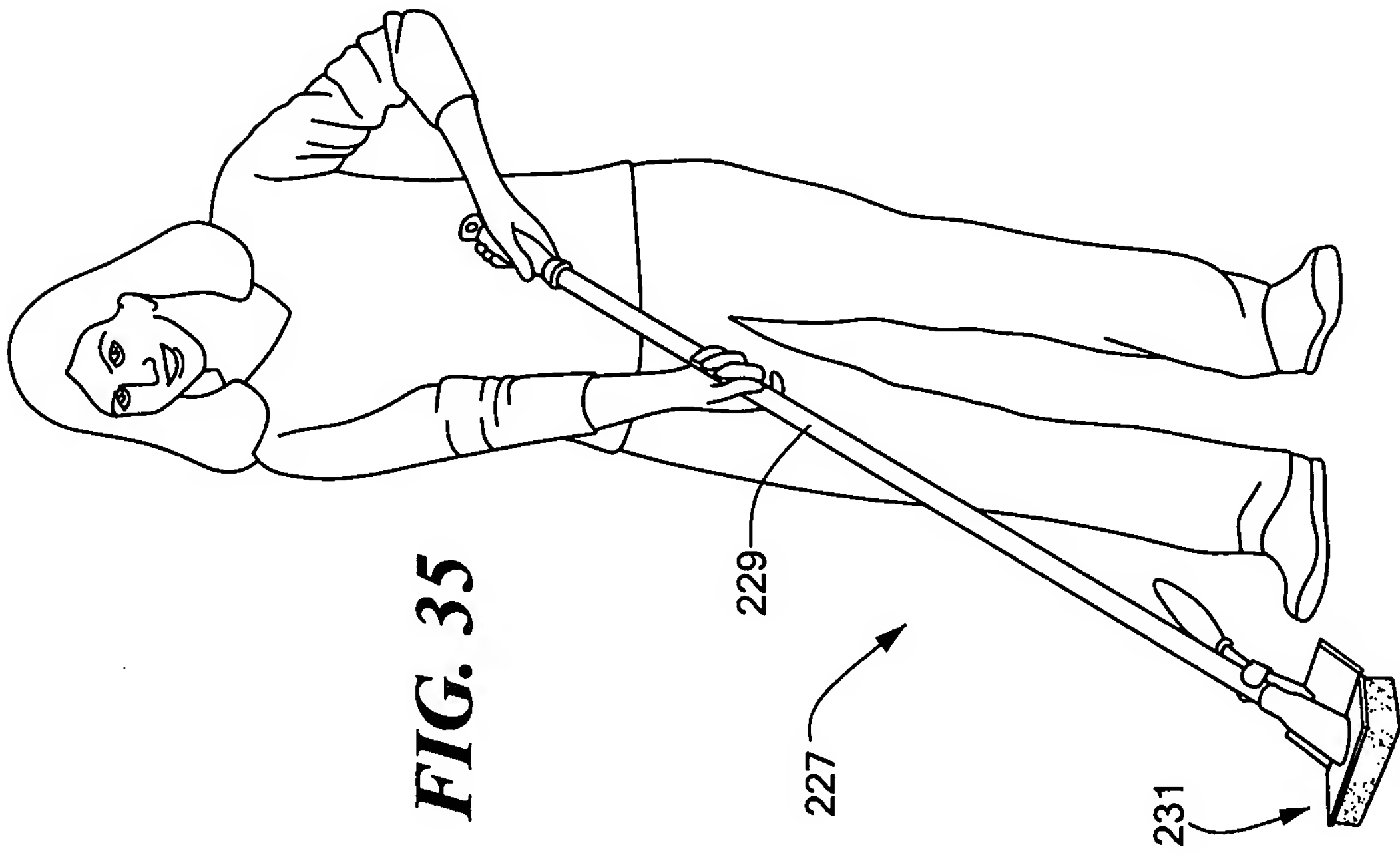
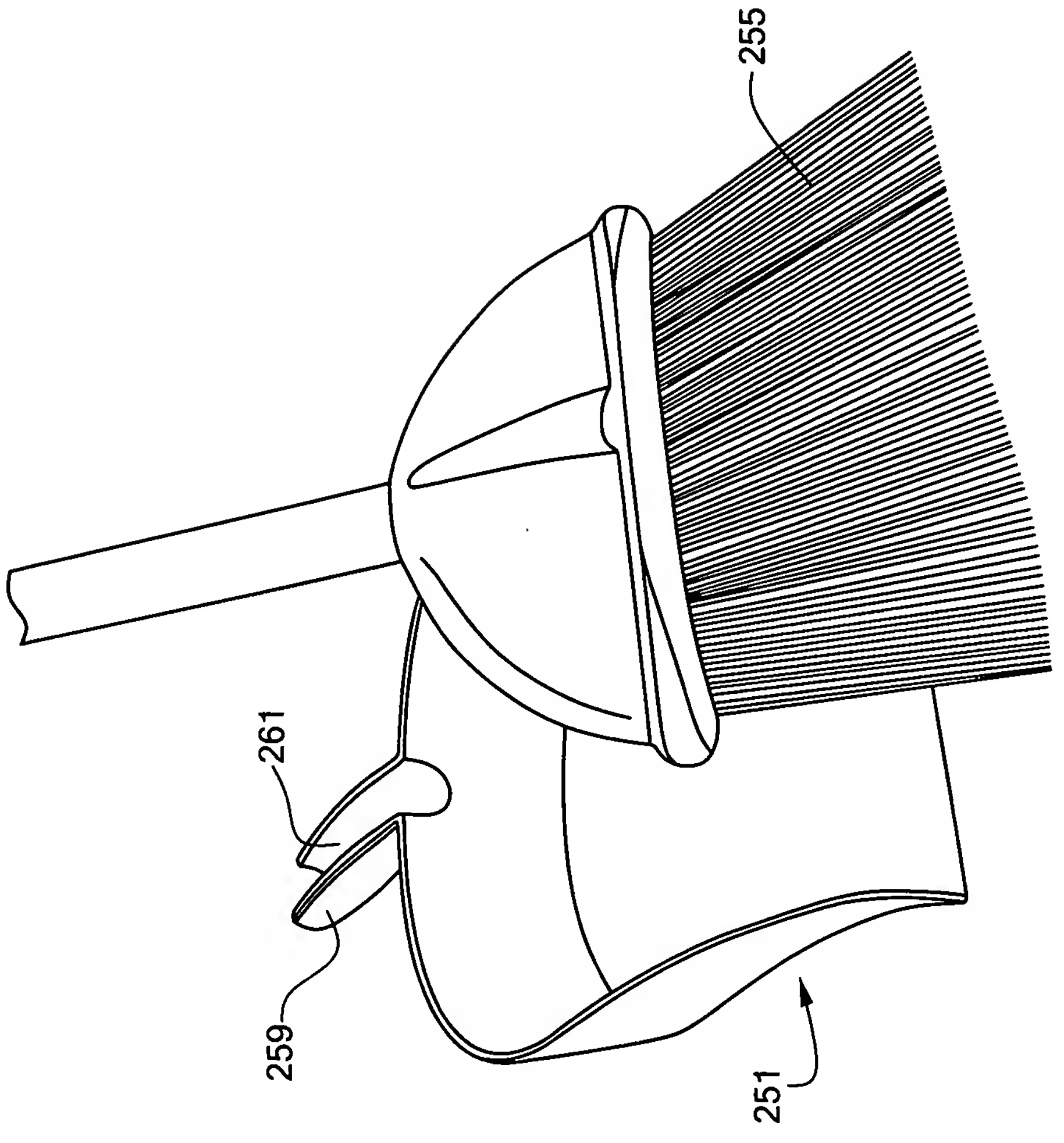
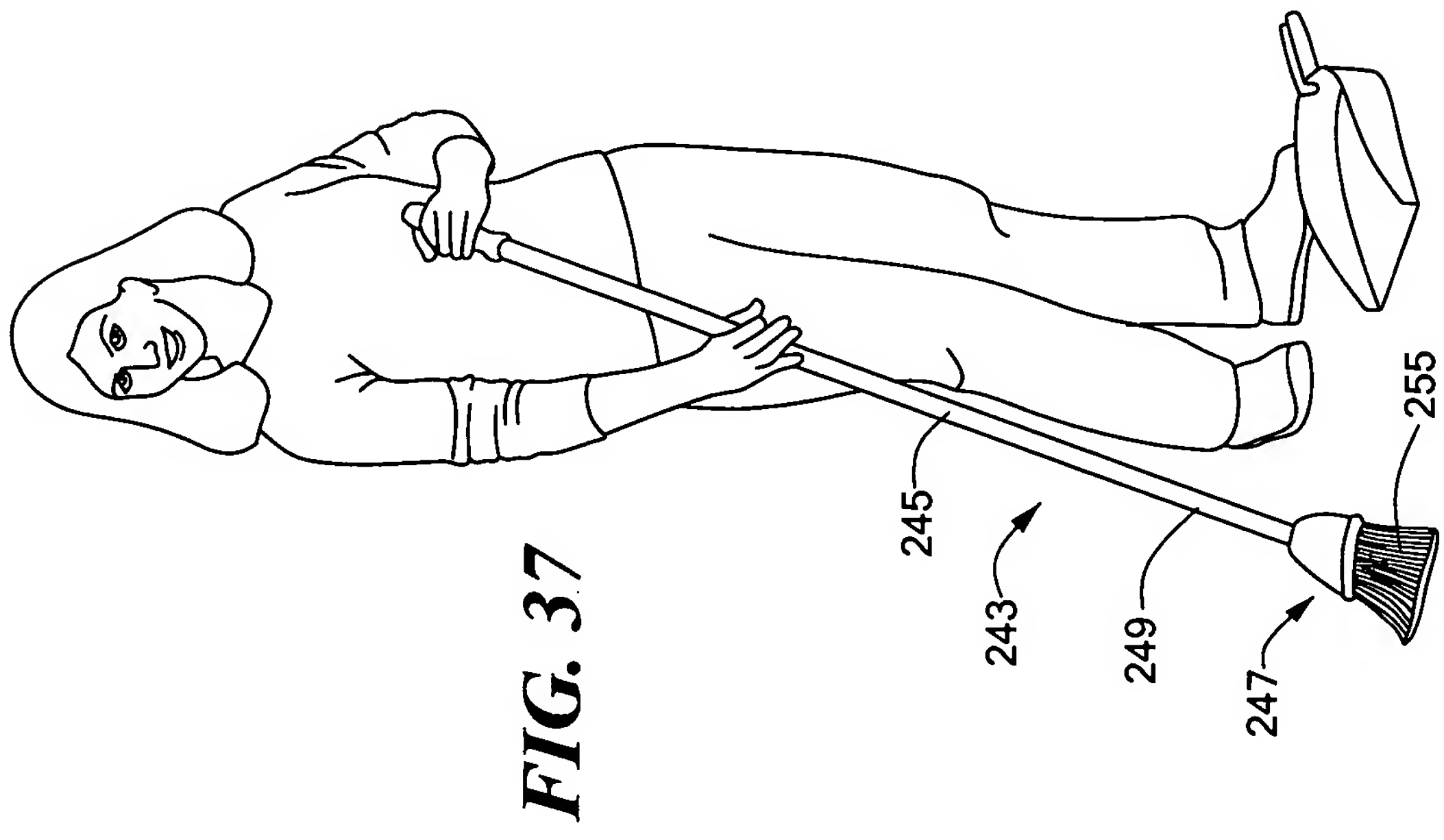


FIG. 34

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/00680

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B65D 69/00; A46B 5/02; F16B 7/00

US CL : 206/577; 15/143.1; 403/297

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 206/223, 361, 577; 15/143.1, 145, 146; 403/223, 292, 296, 297, 314, 343, 351, 366, 370, 371

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST Search: mop, broom, handle, connect, tube

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,609,255 A (NICHOLS, Sally S) 11 March 1997 (11.03.1997), entire document.	1-10, 12, 16
---		-----
Y		11
Y	US 5,876,147 A (LONGO, Renato) 02 March 1999 (02.03.1999), Figures 1-4.	11, 14
X	US 2,827,318 A (WHITE JR., H. C.) 18 March 1958 (18.03.1958), Figure 1.	15
---		-----
Y		13, 14
Y	US 2,639,454 A (DORY, D. R.) 26 May 1953 (26.05.1953), Figures 1-5.	13, 14

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

### \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

24 August 2004 (24.08.2004)

Date of mailing of the international search report

02 NOV 2004

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Gregory Pickett

Telephone No. 703-308-1148

*Sheila H. Veney*  
*Paralegal Specialist*  
*Tech. Center 3700*

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US04/00680

Continuation of Item 4 of the first sheet:

The title of the invention is longer than the 2-7 words recommended in PCT Rule 4.3.

New Title:

Kit for Multi-Piece Floor Cleaning Implement